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RAILWAY TRANSPORTATION

PRINCIPLES AND POINT OF VIEW

BY

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TO

MY FATHER AND MOTHER

PREFACE

WITHIN a few years the railways of the United States will celebrate the close of their first century of public service; in 1830 the "Tom Thumb" made its historic journey. At the beginning of that period the railway faced tremendous obstacles in the shape of mechanical imperfections, public scepticism, and the opposition of rival interests; at its close the railway has won recognition as an invaluable aid to social and industrial progress. Yet, strange to say, the difficulties of this highly developed and essential agency are no less today than they were nearly a century ago—they are merely of a different nature. The "railway problem"—of which valuation, labor, rate of return, efficiency, and government regulation versus operation are but a few phases—is now no less important than it was in the days of the railway pioneer, nor is it less complex. Rather, because of the economic interdependence which has been the outgrowth, largely, of railway development, that question is of vital importance and presents unusual difficulties. The American public faces no problem today the solution of which is more important and the nature of which offers greater challenge to the best minds that can be enlisted in public behalf than this, which deals with our basic agency of transportation.

Democracies, like the individuals which compose them, have a quaint way of "locking the barn after the horse is stolen." Or, to put the matter another way, reliance is too often placed upon cure than prevention. And this has been no less true with respect to the railways than other undertakings. For almost a half-century, while the railway problem was developing, the public seemed ignorant of the possibility of conflict between its interests and those of private enterprise; when that conflict could be no longer ignored the public proceeded to deal with the "railway problem"

with greater energy than judgment or statesmanship. As a consequence of this policy of "muddling through" the American public has made certain definite gains, but those gains have not come without loss—it has become increasingly apparent during the past decade that, in our dealings with this important agency, we must confess with the suppliant that "we have done those things which we ought not to have done and have left undone those things which we ought to have done." Of these errors of commission and omission there are many; to them attention will be directed in the discussion which follows. From this veritable morass of error there is but one way of escape and that way lies along the solid path of understanding. The solution of the "railway problem" will not follow from vindicative action—restrictive and punitive regulation has already failed; neither will the magic wand of gild socialism or government ownership and operation clear away all obstacles. What the ultimate solution of the problem will be is uncertain—if, indeed, there be an ultimate solution—but this much is assured: except as there is a better understanding of the nature of the industry and the character of its problems, we will make slow progress in rectifying past errors of policy and none toward the substitution of preventive for curative treatment. It is hoped that this book may contribute something toward that better understanding, so essential to constructive action.

The history of the railway is fascinating in itself, but it is of greater importance because it furnishes the background of the "problem" with which the American public wrestles today. Therefore, to assist the reader in understanding the present situation, Part I treats rather fuly of the spectacular development of our railway net. In Part II the services of the railway are presented in a brief manner so that those unfamiliar with certain phases of its work may know the basic facts of the carrier-shipper relationship. Because the economic characteristics of the railway business are so generally misunderstood or ignored, Part III is devoted largely to an analysis which will, it is hoped, enable the reader to

understand better the true and false in public policies, actual and proposed. In Part IV is treated historically and in some detail the development of public control over railway enterprise: the parts played in regulation by court and legislature, by state and federal governments are described. To the Transportation Act of 1920, both because of its recency and, even more, because it marks a departure from an earlier policy of excessive and ill-directed regulation, rather extended attention is given.

Throughout the entire volume an attempt has been made, in the presentation of historical material and in analyses, to judge from a public point of view. For, after all, the prime purpose of the railway is *public service*, not a generous return upon invested capital or high wages to employees. Throughout the volume, too, facts have been presented in an impartial manner; yet, where these facts have seemed to justify a positive conclusion, no hesitancy has been shown in expressing such a conclusion. Even though the reader disagree with conclusions stated, as at points he well may, that disagreement itself will serve as a stimulus and a challenge. In addition to the facts, therefore, an effort has been made to give the reader the point of view which the writer has gained through a decade of study of the railway problem.

Because of the number of those who have assisted in various ways in the completion of the task which this volume represents, it is impossible to render acknowledgment to all by name. Nevertheless, because of the important part played by certain ones, these cannot be denied appreciation. To Dr. Richard T. Ely, Professor of Economics, and Director of the Institute for Research in Land Economics and Public Utilities, I am deeply indebted for his personal interest and for many valuable suggestions based upon a reading of a considerable portion of the manuscript. To the Hon. L. E. Gettle, Chairman of the Wisconsin Railroad Commission, I am also deeply indebted for helpful suggestions and criticisms in connection with certain chapters; likewise, and for

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SIDNEY L. MILLER

Madison, Wisconsin, September 3, 1924

CONTENTS

INTRODUCTION

I

NATURE, SCOPE, AND SIGNIFICANCE OF TRANSPORTATION . . . 3

Man's persistent interest in transportation. Meaning and scope of transportation. Its engineering aspect. Problems of management. The transportation service. Types of transportation agencies. Influence of transportation upon the division of labor. Utilization of natural resources. Concentration of production and exchange. Relationship to population. Bearing of transportation upon cultural and intellectual progress. Political importance of transportation. Transportation in its relation to production, consumption, and exchange. Distribution of wealth and transportation. Transportation burdened with a public interest. Scope of this volume. Importance of the study of railway transportation.

II

EARLY HISTORY OF TRANSPORTATION 20

Obstacles to the development of trade and transportation. Influence of improved transportation upon trade barriers. Periods in the development of transportation. Early man's primitive methods. The evolution of land transportation—the wheel and its importance. Progress in transportation by water. The costs of primitive transportation. Social and economic influences of high rates. Historic trade routes in Eurasia. Important American routes, land and water.

I. THE AMERICAN RAILWAY NET

III

THE EARLY DEVELOPMENT OF TRANSPORTATION IN THE UNITED STATES 37

Natural water routes used by colonists. Important overland routes. Early canal projects in the East. Artificial waterways into the West. The Great Lakes–Mississippi system. Local canal projects. Primitive character of early overland routes. The development of toll projects. Public aid for roadway construction. Transportation costs by land and water. Charges upon overland movements. The cost of canal movement. Eco-

nomic burden of transportation costs—their influence upon development. Need of improved transportation facilities.

IV

BEGINNINGS OF THE AMERICAN RAILWAY NET 56

American railway history divided into four periods, beginning with 1830. Development of the track. Evolution of the car. Importance of the locomotive. Early use of steam. The first applications of steam to land carriages. The work of Trevithick. The interest and work of Evans. Further progress—the Rain Hill trial. American interest in the railway. Initial locomotive operation. The railway as an effective transportation agency. Early engineering problems: the roadway. The problem of power. Diversity in track gage. Difficulties of train operation. Public opposition to the railway. Inadequate supply of capital. Railway construction at the close of the first period. Forces behind railway building. Summary.

V

THE ACCEPTANCE OF THE RAILWAY 86

Duration of second period of growth. Important factors influencing railway development. Extent of railway expansion. Causes of rapid mileage growth. Public aid an important cause. Reasons for public aid. Land grants in aid of railway construction. Usual provisions of land-grant acts. Development of our land-grant policy. A reversal of judgment. Appearance of large railway systems. Public interest and consolidation. Early proposals to establish transcontinental service. The Union Pacific Central Pacific project. Other Pacific railways. Appearance of competition. Financial aspects of railway construction and operation. Movement toward regulation. Appearance of positive control. Progress of railways toward plant efficiency. Decline in railway charges and its consequence. Extent of the railway net.

VI

GENESIS OF THE RAILWAY PROBLEM 119

Limits of the period. Influence of extraneous events. Increase in railway mileage. Public aid as an explanation of mileage growth. Foreign support of American railway construction. The western movement of population. Extension of transcontinental lines. Policy of public aid abandoned. Continuance of intensification of competition. Influence of competition on rates. Discrimination becomes a major problem. Decline of water traffic. Increased efficiency of railway operations. Further development of railway cooperation. Southern Railway and Steamship Association. Reappearance of the demand for regulation. Federal and state regulatory acts. Increase in railway investment. Over-

capitalization and its causes. Morality of financial practices during this period. Change in financial policy. Importance of this period in railway history.

VII

DEVELOPMENT OF THE RAILWAY PROBLEM 157

Factors influencing railway development. General character of mileage development, 1894-1919. Extensive growth prior to 1908. The problem of railway credit. Need of railway expansion. Progressive decline in railway growth. Decline as reflected in railway capitalization. Causes of failure of railway credit. Decline in net operating income an important cause. Influence of the uncertainty concerning governmental policy. Appearance of large ownership groupings. Methods employed to federate railways. Results of federation. Perfection of regulation. Regulation by the Federal Government. Federal legislative enactments—the Hepburn Act; the Mann-Elkins Act. Important judicial decisions. Extent and scope of state regulation. Results of railway regulation.

VIII

DEVELOPMENT OF THE RAILWAY PROBLEM: FEDERAL CONTROL 189

The railway situation prior to America's entry into the European war. Organization of the Railroads' War Board. Work of that Board. Federal operation of railways ordered by President Wilson. Reasons for the President's action. Organization of the railways for operation. The standard contract: reasonableness of the compensation paid in accordance with its terms. Work of the Federal Railroad Administration. Railway rates during federal control. Wages and labor disputes. Capital expenditures. Miscellaneous undertakings. An evaluation of federal control: operations; classification and rates; labor policy; financial results. Conclusion—federal control justified. Mechanical progress during the fourth period in railway history. Summary.

IX

TERRITORIAL GROUPINGS 214

Major territorial groupings. Minor territorial groupings: New England, Trunk Line, Southern, Granger, Southwestern, and Transcontinental. Permanence of existing territorial groupings. Railway mileage—concentration in the hands of Class I carriers. Railway mileage in the United States in proportion to population and area. Comparison of railway facilities—United States and Europe. Magnitude of the railway business; equipment utilized and moneys handled. The railway service. The railway of vital importance.

X

OWNERSHIP GROUPINGS 237

Growth of ownership groupings. Recession of movement toward consolidation. Important ownership groupings: Vanderbilt system; history and status of the Pennsylvania lines; origin and prospect of the Morgan group; growth of the Hill system and its successful record; the Union Pacific system and Edward H. Harriman. Minor ownership groupings: the New Haven; the Missouri Pacific and Western Pacific–Denver and Rio Grande Western; the Van Sweringen system; the Canadian groups. Individual stock ownership as a basis of unity of action. Broken ownership groupings—the "Gould Dream"; the Rock Island–Frisco alliance; the New Haven and Hawley systems. Important independent properties: Santa Fe, St. Paul, and Rock Island. Distribution of railway shares. Concentration more apparent than real. Tendency in distribution of railway shares.

II. THE RAILWAY SERVICE

XI

THE RAILWAY AS A CORPORATION 263

The nature of the corporation. Advantages of the corporate form of organization to railway enterprise. Organization of the railway for management. Public and private corporations. The quasi-public corporation and its regulation. The problem of jurisdiction. The railway charter: its contractual nature and uniformity of provisions. Magnitude of the railway corporation. Financial interest of the public in the railways. Tendency toward large corporate units and concentration of active control. Conclusion.

XII

THE ADMINISTRATIVE ORGANIZATION OF RAILWAYS 282

The function of the stockholder. The board of directors. Importance of the executive committee. The corporate officers. Evolution of the presidential function. Training and importance of the modern railway president. The secretary and the treasurer. The general counsel and his staff. The organization and work of the accounting department. The traffic department—organization and functions. The importance and functions of the operating department. Staff and line officers. Divisional versus departmental type of railway operating organization. Railway purchasing. The real estate agent. The efficiency of railway organization.

XIII

FREIGHT SERVICE 304

Freight papers: the bill of lading; straight and order bills of

lading; the live stock contract. Limitation and nature of carrier liability. Title to goods en route, and reconsignment. The beginning and termination of carrier liability. Other legal problems. The way-bill. Forms used at destination. Unit billing. The handling of freight at terminals. The movement of traffic. Demurrage, reciprocal demurrage, and track storage. Evolution of railway interline practice. Compensation for use of "foreign" cars. Advantages and disadvantages of private cars in railway service. The future of private-car development.

XIV

FREIGHT CHARGES 328

Importance of the freight service. The nature and value of the freight tonnage. Increase in the demand for service. Steps involved in the discovery of the freight rate. The development of classification practice. Present classification territories and committees. The Consolidated Freight Classification. Determinants of classification. Commodity rates. Designation of classes. Items listed and number of ratings. Fundamental considerations in the determination of rates. Types and scope of tariffs. Determination of the total charge. Uniformity of classification and rate relationships. The development of freight traffic.

XV

PASSENGER SERVICE AND CHARGES 352

Differences in freight and passenger traffic. Types of trains in service. Character of through service. Classification of tickets. Ticket accounting. Privileges accorded to travelers. The classification of passenger service. Class service in the United States. The growth of the Pullman service. The Pullman contract. Determination of Pullman fares. The excess cost of a "super" service. Comparative passenger service statistics. Service versus efficiency in the passenger field. The development of additional traffic. Elimination of abuses. The problem of competition.

XVI

THE MINOR SERVICES—MAIL AND EXPRESS 373

Place of the railway in the mail service. Development of the railway post-office. Closed-pouch service. "Blue-tag" mail. Volume of railway mail. The terminal post-office. Establishment of the parcel-post service and method of determining rates. Regulations and privileges. Volume and financial results. The problem of railway mail pay. Present basis of compensation. Brief history of the express business in the United States. Organization and administration. The old contract between the railway and express company and the new agreement. Disposition of "net income for division" by the express company. Demand for regulation. The new classification. Rates made

upon a distance basis. Determination of the charge. The future of the express business.

XVII

RAILWAY ACCOUNTING AND STATISTICS 409

Organization of the typical accounting department. Work of the expenditures division. Freight revenue records. The passenger division. Work of the car accountant's staff. Freight claims not an accounting problem. Divisional versus centralized accounting for railway accounting. Investment in road and equipment accounts. The classification of operating revenues. The operating expense accounts grouped under eight heads. The income and profit and loss accounts. The general balance sheet. Evaluation of government control of railway accounting. Basis, scope, and further development of railway statistics. Sources of railway data.

III. THE ECONOMICS OF RAILWAY ENTERPRISE

XVIII

COMPETITION 431

Explanation of the belief in competition and evidences of confidence therein. Competition of routes varied and far-reaching. Traffic competition: parallel routes; diverse routes; right-angled routes; end-to-end routes. Market competition almost universal. Extent of industrial competition. Importance of these two types. Competition assumes two forms. Reasons for the intensity of competition in the railway field—continuous operation; fixity of capital; increasing returns. Continuing influence of increasing returns upon railway policy. Dangers of competition soon apparent to the railways. Results of competition—immediate and ultimate.

XIX

COMBINATION 448

The rate agreement. Pooling agreements appear. Problems and success of the pool. Division of territory. Movement toward closer unification and consolidation: community of interest; stock ownership; the lease; merging of properties. Factors promoting unification and consolidation. Need for unity of action among the railways and opportunities for that unity. Progress by voluntary action or compulsion. The monopolistic character of the railway industry. Tendency with respect to the entire net and the position of the single carrier. Analysis of the traffic of a railway. Modification of types by extraneous influences. The business problem under competitive and monopolistic conditions. The problem of public policy.

XX

CAPITALIZATION AND CAPITAL VALUE 468

Capitalization variously conceived. Gross and net capitalization of the American railway net. Increase in the bond ratio and its evils. Capitalization per mile of line of American railways. Differences among individual lines. Comparison of capitalization per mile of line with foreign railways. Types of railway stocks. Borrowed capital in the railway field. Complexities resulting from the overlapping of claims. Capitalization and true worth. The problem of valuation. Earning capacity as a basis of valuation. The nature and validity of historical cost. Types of cost of reproduction. Advantages and weaknesses of reproduction cost.

XXI

SECURITY REGULATION 487

Sound public policy concerning valuation. Need of authoritative findings. Watered stock: meaning and tests. Reasons for stock-watering. Conditions promoting stock-watering: market manipulation; the "construction company"; stock dividends and "rights"; reorganization. Morality of financial practices. Demand for the regulation of railway security issues. Control by the states. Movement toward federal regulation. Action by Congress. Gains of security regulation.

XXII

RAILWAY REVENUES, EXPENSES, AND DIVIDENDS 501

Sources of railway revenue. Variations as to source among individual roads. Non-operating income: nature, importance, and sources. Railway operating expenses. Variations in proportion of operating revenues expended. Deductions from gross income. Individual and territorial differences in deductions. Disposition of net income. Movement of total revenues and expenses. Distribution of the railway dollar. The operating ratio: importance usually given it, and an evaluation. Interest on railway bonds. Dividends on stock. Market weakness of railway securities. Needed changes to effect credit rehabilitation. Recapitulation of financial results in 1922, Class I railways.

XXIII

THEORIES OF RATE-MAKING 525

Need of sound and definite principles. Theories of rate-making: ability, cost, and social need. Meaning and worth of "Value-of-the-service." "Keep-everybody-in-business"—nature and soundness Use of the developmental rate. Place of the developmental principle in rate-making. "Value-of-the-commodity." Nature, importance, and evaluation of "what-the-traffic-will-

bear." Cost of service. Difficulties of ascertaining and applying costs. The strength of cost of service. Conclusions concerning cost as a rate base. Rates based on social need—"postal" theory. Position of regulative bodies. A reasonable basis for the determination of railway rates.

XXIV

RATE-MAKING IN PRACTICE: EASTERN AND SOUTHERN TERRITORY 548

Varied conditions faced by American railways. Evolution of different rate structures. Trunk Line territory: early competition; four disturbing elements; the adjustment among types of routes; the McGraham scale and its later modifications in rate practice; minor problems. Central Freight Association rate structure. Rate-making in New England and Eastern Trunk Line territory. Summary statement. Peculiar influences operating to shape the Southern rate structure. The basing-point system: its origin, nature and alleged justification. "In" rates the major problem. Importance of the Baltimore-Atlanta rate. Industrial competition in the South. Decline of river traffic. Southern rate structure changing rapidly. Rate-making within the South. Importance of regulation in effecting needed changes in the Southern structure.

XXV

RATE-MAKING IN WESTERN TERRITORY 579

Diversity of conditions. Western Trunk Line territory: Chicago–St. Louis rivalry; the inter-river rate; Twin City adjustment; other relationships established; rates within the area. Summary statement. Trans-Missouri territory: the competitive situation. Common Point rates; other rates within territory; outbound rates. Evaluation of the structure. Southwestern rate structure; rates into and within Texas; inadequacy of the rate level in the Southwest and federal interference. Transcontinental rates: early competitive situation; discrimination against Intermediate territory; zoning order of 1911 and modifications. Present Transcontinental rate situation, traffic westbound and eastbound. Probable developments in this area. General conclusions regarding freight rates. Passenger rates.

XXVI

COMPARATIVE RAILWAY CHARGES 615

The traffic unit in freight and passenger fields. Computation of unit costs. Railway costs and charges. Factors influencing costs: construction differences, efficiency, price level, traffic factors, quantity of shipment. Modifying factors: length of haul; type of traffic; character of service; purchasing power of money. Evaluation of passenger rate comparisons. Conclusion concern-

ing the value of comparisons. Express charges. American freight rates. American and European charges. American passenger rates. Comparison of American and foreign passenger charges. Conclusion.

IV. REGULATION OF THE RAILWAYS

XXVII

THE BASIS OF RAILWAY REGULATION 639

Early regulation in England. Persistence of regulation in the field of transportation. Characteristics and obligations of a common carrier. Public aid given the American railways. Early reliance of the public upon competition. Need for regulation becomes evident. Major purposes of regulation. Private *versus* governmental operation in the accomplishment of these purposes. Determinants of a proper policy: stage of economic development; degree to which artificial stimulation of public welfare is essential; governmental efficiency. Limitations of police power as a basis of regulation. Suggested bases for general regulatory acts. Existence of monopoly in an important field fundamental. Constitutional basis for governmental action. The judicial function in regulation and commission. Problem of the state *versus* federal jurisdiction. Adjustment prior to 1913. More recent developments. The significance of the Transportation Act.

XXVIII

JUDICIAL CONTROL OF RAILWAYS 669

Tripartite division of governmental functions. Development of judicial supremacy. Bases of judicial action in the railway field. The injunction—types and conditions of issuance. Our dual judicial machinery. Common law basis of judicial control of rates; of discrimination; of service. Judicial action under positive regulation. Extent and gains. Labor disputes and equity powers of the courts. Weapons of industrial conflict in the railway field. Legal status of those weapons. Railway receiverships and the courts. Peculiar nature of railway receiverships. Termination of the receivership. Judicial functions pending settlement. Course and extent of receiverships. Weaknesses of judicial control of properties. Possible solutions.

XXIX

STATE REGULATION 698

The charter as a basis of state action. Inadequacy of charter control. The early commission. Demand for more effective regulation. The advisory commission in Massachusetts and in other states. Causes underlying the demand for positive regula-

tion. Nature of early regulation. Constitutionality of regulatory acts. Recession and later resurgence of the demand for positive control. The present commission: organization; scope of action; powers; procedure. Regulation by specific legislation. The gains of state regulation. Its weaknesses—remediable and inherent. Excellence of work done by certain states. Recent extensions of federal authority. Future of state regulation of railways.

XXX

FEDERAL REGULATION OF RAILWAYS: ACT OF 1887 733

Important changes in the railway field. The Windom Report. Early legislative attempts. Demand for effective federal control. Provisions of the Act to Regulate Commerce. Early response of the railways. Difficulties experienced by the Commission: compelling testimony; execution of orders; refusal of courts to accept findings of fact as final. Import and export rates. Maximum Freight Rate case: reasoning of the court and effect of the decision. The Long-and-Short-Haul clause: early difficulties of application and its final emasculation. The Alabama Midland case. Commission now without power. Results of the Act to Regulate Commerce.

XXXI

ESTABLISHMENT OF EFFECTIVE FEDERAL REGULATION..... 756

Demand for positive control revived. The problem of personal discrimination. Financial importance of rebating. The Elkins Act: provisions and operation. Railway regulation a "paramount issue." The Hepburn Act: scope; powers of the Commission; the Commodities clause; judicial review; miscellaneous provisions. Increased activity of the Commission. Uniform system of railway accounting. Commission's decision now final on matters of fact. Commodities clause: early application and later results. Demand for further legislation. The Mann-Elkins Act: rate suspension; rehabilitation of Section 4; the Commerce Court. Minor provisions.

XXXII

A DECADE OF RESTRICTIVE REGULATION 783

Rate increase case. Application of Section 4 as amended. Failure of the Commerce Court. Railroad Securities Commission. Panama Canal Act. Extension of the Commission's service powers. The Valuation Act: provisions; organization of the Bureau of Valuation; progress and probable results. Importance of the valuation project. Machinery for handling labor disputes. The Adamson Act. Miscellaneous railway legislation. Interlocking of railway and supply companies. Railways subjected to thoroughgoing regulation. Gains of federal regulation. Criticisms of our regulatory policy.

XXXIII

THE TRANSPORTATION ACT OF 1920: HISTORY AND PROVISIONS 808

Essential features of the "solutions" offered. Dual character of the problem. Senate and House take action. Points of agreement between the two bills. Important differences. The Conference Committee bill. Transfer to private operation. Temporary financial assistance to the railways. Railway interrelationships. Control of construction and abandonment. Security regulation. Settlement of labor disputes. Provisions dealing with rates and surplus. State and federal jurisdiction. Miscellaneous rate provisions. Broadened powers over the routing of traffic. Changes in the organization of the Commission.

XXXIV

THE OPERATION OF THE TRANSPORTATION ACT OF 1920: RATE OF RETURN AND CONSOLIDATION 835

Influence of general conditions upon the railways. A period of prosperity. The depression. Improvement in business conditions. Price relationships in recent years. Railway plant ill-prepared for efficient service in 1920. Inadequacy of rate and wage levels at close of federal control period. Railway rates increased. Application of the increases to intrastate traffic. Depression brings demands for decreased rates. Reductions made by Commission and railways. Economic conditions and rate theories. Financial results under the Transportation Act, Class I roads. Variations in earnings among districts and individual lines. Tentative plan for consolidation formulated. The consolidation problem as developed by extended hearings.

XXXV

THE OPERATION OF THE TRANSPORTATION ACT OF 1920: LABOR AND MINOR PROVISIONS 861

The wage increase of 1920. Abrogation of the national agreements. Decreases in wages ordered. Basis of determination of a "reasonable wage." The shopmen's strike: early action; "Daugherty injunction"; shopmen defeated. Trend of wages since 1922. Important problems faced by the Labor Board. Evaluation of the work of the Board. Regulation of security issues and construction and abandonment. The Recapture clause. Division of joint rates: New England and "Orient" cases. Regulation of service. Ungrounded criticisms of the Transportation Act: guaranteed return; validation of "watered stock"; railways escape the burden of deflation; unreasonable level of rates. Considered criticism relative to jurisdiction, machinery for settling labor disputes, and consolidation. Evaluation of the Transportation Act.

TABLES

1. Total Mileage Construction of 18 Railroads, 1850... 82
2. Sectional Mileage Distribution in the United States, 1850 83
3. Sectional Distribution of Mileage in the United States, 1873 90
4. New York–Chicago Rates, First Class, in Cents per Hundredweight 107
5. Stockholdings of Foreign Investors in American Railways, 1890-96 127
6. New York–Chicago Rates, First Class, in Cents per Hundredweight, 1874-1888 136
7. Miles of Line per 10,000 Population and per 100 Square Miles in Selected States, 1920 229
8. Miles of Line per 10,000 Population and per 100 Square Miles of Territory—Countries of Europe.. 230
9. Condensed Income Account—Class I Railways—1920-1922 231
10. Employment and Labor Cost Data—Class I Railways —for the Years 1912 and 1919-1922 232
11. Freight Service Statistics—Class I Railways—for the Years 1912 and 1919-1922 233
12. Percentages of Total Freight Contributed by Various Groups into Which Tonnage Is Divided by the Interstate Commerce Commission, 1912 and 1919-1922— Class I Railways 234
13. Passenger Traffic—Class I Railways—for the Years 1912 and 1919-1922 234
14. Percentage of Stock of 50 Largest Railways in the United States Held by 20 Largest Stockholders.... 256
15. Growth in Number of Stockholders in 20 Principal American Railways, 1904 to 1922 277

16. Classification of Class I Railways by Districts, According to Operating Revenues, for the Year 1921 279

17. Specimen Items from Consolidated Freight Classification Number 3 337

18. Comparison of Classification Ratings 347

19. Uniform Rate Scale for the United States 349

20. Express Rates Governing Sub-block Movements 402

21. Constant and Variable Expenses in Railway Operation 443

22. Capitalization, Book Cost, and Fair Value of American Railways 470

23. Capitalization per Mile of Line of Foreign Railway Systems 475

24. Operating Revenues—Class I Railways 502

25. Amounts Received by Selected Roads from Freight and from Passenger Revenues and Total Operating Revenues—1923 504

26. Non-Operating Income—Class I Railways 505

27. Operating, Non-Operating, and Gross Income of Various Railways with Most Important Item of Non-Operating Income Noted—1921 506

28. Operating Expenses—Class I Railways 507

29. Deductions from Gross Income—Class I Railways—Important Sub-Headings and Totals 509

30. Disposition of Net Income—Class I Carriers 510

31. Movement of Operating Revenues and Expenses—Railways of the United States—1905-1923 511

32. Distribution of Railway Operating Revenues Expressed in Cents per Dollar—Class I Carriers 512

33. Amount and Percentage of Capital Stock upon Which Dividends Were Declared, and Average Rate of Dividends Declared, for the Years 1888 to 1922 ... 520

34. Recapitulation—Class I Railways—Year Ending December 31, 1922 522

35. Progression of First Class Rate 560
36. Freight Revenue per Ton-Mile—United States 629
37. Average Revenue per Passenger-Mile—United States 632
38. Index Numbers of Wholesale Prices, by Years, 1917-1923 841
39. Rate of Return—12 Months Ended December 31, 1923 857

FORMS

1. Railways in operation in the United States in 1850.... 81
2. Railways in operation in the United States in 1870.... 89
3. Map showing the railways in the United States together with the principal connecting lines in Canada and Mexico, 1890 .....between 122 and 123
4. Area, shown in black, of public land to which railways obtained title under various land grants 133
5. Mileage constructed in the United States and Canada since 1893 162
6. Railways in operation in the United States in 1923.... .....between 164 and 165
7. Revenue ton-miles and revenue passenger-miles of steam railways in the United States, 1890-1922 166
8. Percentage relationship of railway traffic and railway facilities, on an annual average of 1902 to 1906, inclusive, as a base of 100 170
9. Range of average monthly high and low prices of industrial and railroad stocks on the New York Stock Exchange, January, 1912, to June, 1924 173
10. Absolute and relative increase in railway taxes 175
11. Diagram showing main features of the organization of the Federal Railroad Administration. (Other regional organizations similar to that shown for Eastern region) .....between 194 and 195
12. Major and minor railway groupings 216
13. Subdivisions of major groups recognized by the Interstate Commerce Commission in compiling statistics 223
14. Outline plan of typical American railway organization 288
15. Plan of divisional and departmental organizations.... 299
16. Specimen of Uniform Straight Bill of Lading 306

17. Specimen of Uniform Order Bill of Lading 307
18. Reverse side of Order Bill of Lading showing contract terms and conditions 308
19. Loss and damage costs 312
20. Specimen of Freight Way-Bill 314
21. Classification territories 333
22. Specimen page from Parcel-Post Guide 381
23. Official zone key to Parcel-Post Guide for unit Number 2,262 (Madison, Wisconsin) 382
24. Specimen page from Express Directory 398
25. Portion of express rate table 399
26. Express rate table Number 2 400
27. Schedule of express rates 403
28. A traffic lay-out showing possible tonnage movements 462
29. Proportion of funded debt and stock of American railways to total capitalization, for the years 1890-1921 472
30. The distribution of railway operating revenues expressed in cents per dollar of gross revenue 514
31. Railway operating revenues, expenses, and income of Class I railways in the United States, monthly, 1910-1923 517
32. Rate territories in the United States and important sub-territories 550
33. Percentage groups, Trunk Line territory—Eastbound 557
34. Rate areas in Texas 593
35. Zone boundaries fixed by the Interstate Commerce Commission in 1911—Westbound traffic to intermediate and Pacific Coast points 603
36. Transcontinental territorial groups—Westbound class traffic 608
37. Map illustrating the Alabama Midland Case 752
38. The 1920 amendment of Section 4 illustrated 831

39. Average weekly cars of revenue freight loaded, daily average freight accumulations, and car surplus and shortage 839

40. Weekly cars of revenue freight loaded—all commodities 854

41. Railway wages, freight rates, and cost of living, 1915-1923 (1915 = 100%) 880

42. Freight rates as an element in cotton and live stock prices 881

43. Variations in farm prices for wheat, corn, and oats, contrasted with stationary freight rates 882

44. The course of average wholesale prices and of average freight revenues per ton-mile, 1867-1923 883

RAILWAY TRANSPORTATION

INTRODUCTION

I

NATURE, SCOPE, AND SIGNIFICANCE OF TRANSPORTATION

Man's persistent interest in transportation. Meaning and scope of transportation. Its engineering aspect. Problems of management. The transportation service. Types of transportation agencies. Influence of transportation upon the division of labor. Utilization of natural resources. Concentration of production and exchange. Relationship to population. Bearing of transportation upon cultural and intellectual progress. Political importance of transportation. Transportation in its relation to production, consumption, and exchange. Distribution of wealth and transportation. Transportation burdened with a public interest. Scope of this volume. Importance of the study of railway transportation.

THROUGHOUT the entire period of human development the problem of transportation has been of outstanding significance. From the time of his earliest appearance upon the earth man has sought earnestly and persistently to discover means of moving himself and his possessions more easily and more quickly from place to place, and, with development and progress in other fields, there has been a parallel forward movement in the efficiency of his transportation agencies. That forward movement has been so great during the past century, however, that any study of the problem must, perforce, concern itself largely with this recent period. Indeed, the two agencies which now render most effective service in the transportation of goods and persons were both unknown at the opening of the century just passed—the railway, serving those located in inland areas, and the steamship, those for whom ready access to water exists. Of these two the railway, because of its peculiar economic character and because of the great numbers dependent upon it for service, has given rise to more varied and difficult problems. So complicated are many of these, so obscured and intertwined are they with others of an economic and social char-

acter, that it is only through a clear appreciation of the fundamentals in the railway field that an understanding can be gained of the situation in the United States today. Without that understanding any solution of the railway problem must rest upon a basis of chance rather than upon a foundation laid by intelligent and purposive action.

THE MEANING AND SCOPE OF TRANSPORTATION

The word transportation itself, like many another of our English words, is of Latin origin and is derived from the Latin *trans,* across, and *portare,* to carry. By derivation, then, transportation is concerned with the carrying across or transferal of all things capable of movement. Outstanding among the things desired by man and transportable by him are the infinite number and variety of material commodities. With the production and distribution of these he has always been concerned, and to facilitate their movement he has sought earnestly to increase the efficiency of carriage by land and sea. The movement of persons has also been a matter of fundamental concern and much of the effort expended in the improvement of transportation facilities has been put forth that man might move himself from place to place with greater rapidity and ease. A more recent transportation function and one which increases in importance to the peoples of the world with the growth of intelligence, is that concerned with the movement of ideas. The expeditious movement of the written or printed word and the transmission of ideas by wire or wireless have gained a place of supreme importance in modern society. Another and still later phase of transportation is concerned with the transfer of power between distant points. This has greatly facilitated the development and utilization of electrical energy during the past quarter of a century and even more important and rapid progress is probable in the near future. Important though all phases of transportation are, it seems that the movement of goods and of ideas are least dispen-

sable to economic and social progress. Yet it must be recognized that the transportation of persons serves a valuable social purpose and that the transmission of power over long distances is certain to play a steadily increasing part in the development of an industrial economy.

Just as the study of transportation is a matter of great significance, so is the scope of that field exceedingly broad. So broad, indeed, that it would be impossible even to sketch all phases of it within the confines of a single volume. Nevertheless, before indicating the particular phase with which this treatment is concerned, it is well to note the various points of view from which a study of transportation may be made. The agency rendering the service is, in itself, deserving of attention. That agency may be considered from the standpoint of construction; if so regarded, the problem becomes essentially an engineering one. To it must be given the attention of civil engineers, of mechanical and electrical engineers, and of those concerned with problems of propulsion by steam or gas. These technicians find themselves faced with two major problems, the construction of the roadway and the designing of the varied types of equipment utilized upon it in the actual carriage of goods, persons, and so forth, from place to place. Incident to the one problem arise questions of railway road-bed and location, of highway construction, and of harbor and waterway plans; incident to the other, matters of ship designing, locomotive and automobile construction, and the development of the various kinds of cars and other conveyances necessary to handle efficiently widely diverse types of traffic.

PROBLEMS OF MANAGEMENT

The agency rendering the service may also be studied from the standpoint of management. The control of any railway property, large or small, presents two basic problems. Of these the more varied is that of administration.

Numerous forms of organization, which are variously suited to different conditions, have been developed through long years of experience. Among these forms responsible administrative officers must choose with a view of achieving maximum results. A choice once made, to keep that organization functioning continuously in such manner as to render an adequate service at a reasonable rate with at least a fair profit to the business unit, challenges the administrator as he is challenged in few other fields. The second problem of management is that of securing the business, and to this end efforts are made not only to lure existing business from competitors, but also to develop new industries and new wants which must, perforce, add to the traffic of the property.

THE TRANSPORTATION SERVICE

But instead of attention being directed toward the agency rendering the service, transportation may be regarded from the point of view of the service rendered. When so considered, the field offers quite different problems for the consideration of the student. Here emphasis may be placed upon the various *types* of service such as freight, passenger, and express; or, on the other hand, attention may center upon those questions and problems arising out of the contact of the transportation agency with its patron. Yet again, emphasis upon the service rendered may direct study toward that interesting relationship between the carrier and the government which has developed in the United States since 1870. A knowledge of all these phases is important to an understanding of the transportation problem.

TYPES OF TRANSPORTATION AGENCIES

The types of transportation agencies developed by man throughout his existence have been numerous and varied. Upon land he has evolved methods of movement peculiar to certain geographic and climatic conditions, such as the cara-

van and the sledge. Even yet, in primitive sections, the pack-train and the wagon-train function importantly in the movement of goods, while throughout great areas the runner and the mounted messenger continue to serve peoples in the transmission of ideas. In modern nations, however, the railway and the motor vehicle play an almost exclusive part in the overland movement of goods and persons, though the pipe-line occupies an important place in its specialized field. In the movement of ideas modern man need no longer rely solely upon even the locomotive and the motor car, but is able to call upon such marvelous agencies as the telephone, the telegraph, and the radio to assist him. In the field of power, transmission-line development has made striking progress during recent years not only in extent but also in efficiency. Upon water, where the variety of agencies is far less than upon land, three significant types have been developed for the movement of goods or persons: the man-propelled raft or boat, the sailing vessel, and the steamship. These, together with cable lines, long served exclusively in the transmission of ideas between land areas. Development in the air is much more recent than upon either land or water; it is only within the last few years that man has succeeded in navigating the air at will. What the future may hold for the Zeppelin type of airship, for the aeroplane, or for other similar agencies, as effective instruments for the transportation of goods, persons, or ideas, as well as what it may hold for the wireless, it is impossible to predict. It is probable, however, that the great development of the future will lie in the air rather than upon land or water, for it appears that a degree of perfection has been attained here which will permit of no further growth comparable to that expected in the newer and more fascinating field of open space.

INFLUENCE UPON THE DIVISION OF LABOR

A realization of the importance of transportation has been the major driving force which has induced man to devote

so much thought and energy to increasing its efficiency. Through long ages man has earnestly sought to increase his productivity that he might better satisfy his expanding wants. Perhaps no one factor has furthered this productivity more than the division of labor. Occupational division of labor appeared within the group early in man's history, even before exchange between groups had shown itself to be highly advantageous. This type, however, was limited by the extent of the market and to even a greater degree was technical division of labor, with its advantages of increased skill, economy of time, more effective use of labor and of capital, stimulation of invention, and substitution of machinery for human effort, so limited. Except as exchange developed among groups—indeed, except as it arose among considerable numbers of groups—neither type of division of labor could be utilized extensively. And the great obstacle to such exchange was slow and costly transportation. Upon the increased efficiency of transportation facilities depended, in large measure, therefore, the extended utilization of both occupational and technical division of labor. But wholly upon that efficiency depended the third type, the territorial division of labor, which enjoys outstanding advantages in the production of goods: such division can progress only in so far as man is able to move goods effectively from one section to the other. During the earlier periods this territorial division of labor existed only in non-perishable goods of high unit value but, as the efficiency of movement increased, the market for perishables and commodities of low unit value has broadened until today fresh fruits, vegetables, meats, sea-food, and grain, lumber, coal, and numerous other items are consumed regularly hundreds, even thousands, of miles from the point of production.

UTILIZATION OF NATURAL RESOURCES

Efficient transportation is also of supreme importance in the utilization of natural resources. It matters little that a

nation possess rich coal deposits and great quantities of metallic ores if those two resources cannot be brought together at low cost; without the former the latter is of little service. Tremendous possibilities of water-power development have no significance unless the energy available can be effectively distributed and utilized to drive the wheels of industry. The existence of vast resources of potash and of nitrates means nothing to exhausted soil if those restoratives of fertility cannot be efficiently transported to the farms where they are needed. To the thousands and hundreds of thousands, indeed, to the millions throughout the world who find themselves huddled together in small spaces, inadequately housed and fed, it matters little that nature has provided vast forests and fertile empires capable of producing enough to meet the millions' every need except as the product of forest and farm can be moved at a sufficiently low cost to permit the amelioration of their condition.

Related closely to the division of labor and the utilization of natural resources and with them dependent upon the nature of existing transportation facilities is the development of important production and market centers. Throughout man's entire history the great centers of population have been at the crossing of trade or transportation routes. This was especially true prior to the appearance of industrialism, though, with its coming, centers of production in which occupational and particularly technical division of labor has been carried far have gained increasing prominence. To these centers come vast quantities of raw material and from them go out in every direction and to all parts of the world an infinite variety of finished products. With the ever-increasing efficiency of transportation agencies, the economic future may be said to belong to those places which, for various reasons, have become centers of production or of trade and particularly to those which are so fortunate as to enjoy advantages in both the fabrication of goods and commerce. Yet, however great the power of a manufacturing

center may become, a temporary cessation of the inward flow of raw materials and the outward flow of finished products, or even an adverse change in transportation charges, must convince the most arrogant of centers that upon the maintenance of adequate transportation at low cost depends its entire success, present and future. To the greatest of the world's markets any serious impairment of the means of transportation brings paralysis, immediate and complete.

RELATIONSHIP TO POPULATION AND PROGRESS

The character of transportation facilities available also has a very direct relationship to certain problems of population. Step by step with an increase in the efficiency of transportation is laid a foundation for the development of great population centers. Without modern railway and steamship transportation it would be impossible to conceive of such great centers of population as London, New York, and Chicago expanding further, even continuing to exist as they are—there would be neither the economic basis for profitable employment nor the means of supplying the millions with the bare necessaries of life. Yet, improved transportation not only makes possible this more frequent appearance and striking growth of populous places, but it also makes more feasible the antithesis of such a movement. Through the opening of new territories and the possibility of developing new industries in old, added and important opportunities are presented which tend to draw people from the older and more densely populated areas into the newer sections and industries. Thus is counteracted measurably the gregarious instinct which has contributed so importantly to the development of the city; the physical barriers of inadequate transportation to *extensive* growth are minimized or removed.

The growth of culture and intelligence is another consideration intimately associated with the degree of advancement of transportation. Primitive peoples find themselves compelled to engage with nature in a struggle so keen that

present needs are satisfied only with difficulty; the accumulation which enables man to expend effort and thought upon other matters than the satisfaction of immediate and pressing wants is lacking. In consequence, intellectual and cultural development proceeds at little more than a snail's pace if progress is accomplished at all. Because more efficient transportation has increased man's productivity, to it must be ascribed in large measure the gradual accumulation of that surplus which has permitted him to devote an increasing portion of his efforts to aesthetic and intellectual interests in life. But not alone has transportation functioned thus in the development of those things which we term civilization. As it has increased in efficiency there were offered "new worlds to conquer" and the stimulus of this challenge has always made for progress. Furthermore, greater efficiency of transportation has increased contacts between peoples and between cultures, and the establishment and maintenance of such contacts is essential not only if progress is to be furthered, but even if heights already gained are not to be lost. History is replete with illustrations of peoples which, because of an isolation imposed by nature or by social will, have progressed rapidly for a time but, through lack of stimulus, have lost their early impetus and have even retrograded with the passage of time. Indeed, forward movement has been stimulated by contact rather than by lack of contact, and nothing has promoted such contacts more than participation in trade and commerce, which, in turn, depends almost wholly upon advancement in the nature and efficiency of transportation.

POLITICAL IMPORTANCE OF TRANSPORTATION

The influence of the character of transportation facilities has been no less important upon the political unit, however, than it has been upon the economic and social life of the world. The city state of ancient Greece would be as ill-adapted to modern conditions as such modern units as the

United States, Canada, Russia, and Australia would have been impossible during that earlier period. The stability of the state varies directly with the cultural and intellectual unity of its peoples, and no single element contributes more strikingly to the development of homogeneity than these numerous contacts which result from the existence and generous utilization of efficient agencies for the movement of goods, persons, and ideas. That this fact is clearly recognized in the modern state was shown more than a half-century ago by the readiness of the United States to pay whatever price seemed necessary for the early construction of a railway from the Middle West to the Pacific Coast, the avowed purpose of which was to bind the newly developed Far West more closely to the older East than was possible when the pony express, the wagon-train, and the steamship offered the most effective means of communication. The East sought thus to forestall a movement toward disunion which must otherwise have appeared. More recently, the same purpose was evidenced in the construction by the Australian Commonwealth of hundreds of miles of railway through a desert area in order that the rapidly developing southwestern region might be the more closely knit to the developed eastern section.

Efficient transportation serves a political purpose aside from the solidification and stabilization of the political unit; it greatly strengthens the hand of that unit in armed conflict. The easy and rapid transportation of troops employed in Indian warfare and the consequent better protection of frontier settlements from raids, was one of the underlying purposes of early railway construction in the American West. The Trans-Siberian railway was intended to serve a military as well as an economic end, and its failure to function adequately in the movement of troops and war materials was one of the important reasons for the defeat of Russia at the hands of Japan. The "Cape to Cairo" and "Berlin to Bagdad" projects won ready support from Great Britain and Germany, respectively, because of their immediate offensive

and defensive military value as well as the ultimate economic benefits which they promised to confer. All students of the recent World War realize that one of the most important elements of German strength was a system of railways adapted to her military needs and adequate for that use, and realize also that, perhaps even more than internal corruption and treachery, the inadequacy and final collapse of the Russian railways explains the fearful debacle of 1917-1918 in that country. If the political structure is to be solidified, if protection against internal foes and external aggression is to be enjoyed, if successful offensive warfare is to be waged, then painstaking effort must be made to develop an adequate and efficient transportation machine.

RELATION TO PRODUCTION, CONSUMPTION, AND EXCHANGE

It is difficult to overemphasize the significance of transportation from an economic standpoint. Any change in the efficiency of that agency influences production profoundly. Productive itself in that it creates place utility, it is an important factor in the rendition of form and time utility as well as of personal service; lacking adequate transportation, the performance of society in these fields must be tremendously less. Productive capacity and efficiency advance with improvements in transportation. If, however, facilities for handling traffic fail to keep pace with industrial and commercial advancement because of neglect, of technical stagnation, or of lack of credit, then business and trade must inevitably suffer the binding and crippling effects of this failure. Since the efficiency of transportation service determines largely the range of goods available upon the market, and since, as that range increases, man's wants themselves become more varied, it is evident that consumption as well as production is peculiarly dependent upon the stage of carrier development. Furthermore, because of the higher productive efficiency which follows in the wake of improved transportation, goods are cheapened and the consumer's real

income is increased. Improved methods of movement, then, both widen the range of man's consumption and make possible the enjoyment of a greater quantity of goods. Exchange also is influenced by the effectiveness of the existing transportation facilities, since the quantities of goods available for exchange depend thereupon in great degree and since exchange is facilitated through increase of knowledge and the establishment of higher standards of living.

DISTRIBUTION MODIFIED BY EFFICIENT TRANSPORTATION

Yet distribution is affected more markedly and perhaps in a more interesting manner. Rent, one of the distributive shares, is the difference between the value of the product and the expense of obtaining that product upon marginal land or at the intensive margin when that land is cultivated most advantageously. But the value of that product depends upon both its quantity and the expense of placing it in the market—depends, in short, upon both the quality and location of the land. Therefore, variations in the efficiency of transportation must inevitably influence directly the amount of the rent. This is especially true to the degree that location is important because, after all, location is not an absolute, physical thing, but rather a matter of relationship—it is not miles but rather time and cost that are the fundamental elements in location. The development of more efficient transportation agencies or the extension of those agencies into new areas may lower or may raise rents, depending upon the market situation resulting; the rapid expansion of the railway net in the Mississippi Valley increased rents in that area and, in consequence, increased land values; but it lowered them in the older sections which were unable to compete upon even terms with the fertile western lands thus made available for cultivation. Yet even quality of land is influenced somewhat by transportation. As efficiency of movement increases it becomes easier to secure for use upon the land those elements of fertility,

such as nitrates and potash, which are needed to adapt it to a particular purpose and which are lacking or have been exhausted through long or unwise use.

Interest, that share of the social product assignable to capital chiefly for services rendered by it in the productive process, is also influenced by the character of transportation facilities available. Improved transportation facilities tend both to increase and to equalize interest rates. The former tendency is due to two facts. As the efficiency of transportation increases, the productive capacity of particular units of capital as well as of society as a whole rises, and total productive capacity is always a limiting factor in determining the extent of the reward. Furthermore, the widening of opportunities consequent upon improved transportation augments the demand for capital, and this demand forces the loan rate upward and compels it to approximate more nearly the actual worth of capital to the entrepreneur. The equalization of rates results from improved communication and increased contacts: it is thus that surplus accumulations of funds in certain sections are made more available for other areas in which demand is intense.

Wages, both nominal and real, are also dependent in considerable measure upon the efficiency of existing transportation facilities. As productivity increases, the worker shares with capital in that gain and enjoys the added advantages which result from a decline in the price and an increase in the demand for labor resulting from industrial expansion. Greater ease of movement permits the worker to take advantage more readily of high wage levels at other points and thereby assists in increasing the rate of wages which must be paid him by the entrepreneur. Did the worker but realize, no factor of production has more to gain through technical advancement and through increased efficiency in the operation of the various agencies of transportation than that portion of society which is dependent upon its daily wage for a livelihood.

Another who profits through any improvements in the

methods or mechanism of transportation is the entrepreneur. As the residual claimant in the productive process any increase in opportunity must redound to his advantage. The improvement of transportation makes immediately possible the intensive development of industry and commerce in older areas and offers an infinite variety of new opportunities in the recently opened fields. Until the ultimate adjustment to new conditions is made, therefore, the entrepreneur shares with the owners of land and capital and with the seller of labor power in the social gains which result from progress in the instruments of transportation and suffers with them the losses which flow from any deterioration in that agency.

TRANSPORTATION BURDENED WITH A PUBLIC INTEREST

Because of the close relationship which has existed from the very beginning between his agencies of transportation and his social, economic, and political status, man has long regarded these agencies in a manner quite different from others. They have fallen within that group of enterprises which is regarded as "burdened with the public interest" and, to the degree that the public has suffered unfair treatment from these agencies or that dissatisfaction has developed because of policies pursued under a competitive régime, a wide-spread and insistent demand has been made for their regulation in the interests of society. For many years in the United States there appeared no clear evidence that the railway was functioning in a manner prejudicial to public interest; the railway had been in operation in America for more than a generation before it threatened, because of certain economic characteristics which will be discussed fully elsewhere, to do serious injury to social well-being. No sooner was that threat apparent, however, than the public acted to protect its interests. Regulation by government in behalf of that public was upheld by the highest state courts and their position was confirmed by the United States Supreme Court in the famous case of *Munn*

v. *Illinois*,[1] with scarcely an intimation as to the existence of limits upon the scope of public control. That this power had remained unused for so long a period did not serve at all to stop the public from resorting to it when the need arose: it was clearly recognized that the old common-law principles governing common carriers still controlled, even though the agent involved was new. Since the transportation function is, economically and historically, thus heavily freighted with public interest, regulation followed not only naturally but legitimately in the wake of serious abuses.

SCOPE OF THIS VOLUME

The vast extent of the transportation field, and the magnitude of the problems which arise therefrom, make it impossible to treat the subject in its entirety within this volume. Instead, it will be the purpose of this work to discuss steam railway transportation in the United States with but incidental reference to other agencies, and to discuss that particular phase of the transportation problem from four standpoints—the development of the American railway net, the service rendered by that net, the economics of railway enterprise, and the history of regulation in the United States. It is hoped that this foundation will give to students and to other readers alike a sufficiently clear understanding of the railway industry to enable them to pass reasonably accurate judgment upon those questions of a business or citizenship import which will arise in increasing numbers as economic and social life becomes more complex.

Indeed, it may be said with truth that at no time in the history of railway development has sound judgment and thorough understanding of railway fundamentals on the part of the public been more needed than they are today. An intelligent grasp of the railway situation is to be desired from a cultural point of view, for never has the railway occupied a more prominent and frequent place in the daily news

[1] 94 U. S., 113.

than at the present time. In consequence, he who knows little of the underlying principles and to whom basic facts are strange, must confess ignorance or evidence error in discussions of these matters. From a business standpoint, also, an understanding of fundamentals in the railway field is vital. There is no type of enterprise which is not affected in a profound measure, either directly or indirectly, by transportation; and the railway is the transportation agency which has greatest bearing upon the prosperity and well-being of the American people.

IMPORTANCE OF STUDY OF RAILWAY TRANSPORTATION

Beyond the cultural and business need of an understanding of the transportation situation lies the obligation which rests upon citizenship. For a half-century one or another of our governmental agencies has sought to control the railway, until today we find engaged in that "great national pastime" 48 state legislatures and Congress, together with an almost equal number of state regulatory commissions and the Interstate Commerce Commission. In addition to these, any court of record, state or federal, in the United States, may be called upon to function as a supplementary regulative agency. It seems clear that our railways are regulated well rather than wisely and this despite the peculiar need of wisdom in so important a field! No greater internal problem faces the American people today than the sound solution of this question of the relationship between railway and government. Is a general policy of regulation sound? If so, wherein lie our past errors of method? Or must we recognize the inadequacy of regulation in dealing with an agency so intimately related to public well-being and possessed of the economic characteristics of the railway and, therefore, abandon that policy in favor of some form of government ownership and operation?

Concerning this great problem the present generation of American citizens should reach a definite decision; no

longer should we "muddle through." A wise answer can be made only by those who have examined the problem with an open and unprejudiced mind which has a firm hold upon basic facts. To each reader, then, as a student of affairs, as an active participant in industrial and commercial life, as a stockholder in government, this treatment of the American railway is commended in the hope that it will serve to give a broad and sound basis of understanding for positive conclusions and constructive action.

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——*Munn* v. *Illinois,* 94 U. S. 113.

II

EARLY HISTORY OF TRANSPORTATION

Obstacles to the development of trade and transportation. Influence of improved transportation upon trade barriers. Periods in the development of transportation. Early man's primitive methods. The evolution of land transportation—the wheel and its importance. Progress in transportation by water. The costs of primitive transportation. Social and economic influences of high rates. Historic trade routes in Eurasia. Important American routes, land and water.

TRANSPORTATION and trade are but two sides of the same problem. Without trade, transportation would have but little economic basis, and without transportation the development of trade would be impossible. When transportation facilities are inadequate the market for bulky commodities of low value or for those which are perishable in character must be narrow and distance movement be, of necessity, confined to goods such as the precious metals, jewels, silks, spices, and like items which composed largely the trade of both ancient and medieval times. Step by step with improvements in transportation, the movement of commodities of low value has increased, and perishable goods which formerly were consumed locally have come to enjoy a national, even a world market. This is evidenced by our enormous low-grade tonnage of today and by the long movements of fresh meats, fruits, and vegetables through the aid of the cold room and the refrigerator car. Not only the quantity but also the variety of goods interchanged increases with each improvement in transportation.

OBSTACLES TO DEVELOPMENT OF TRADE AND TRANSPORTATION

This intimate relationship between transportation and trade causes such obstacles to the development of the latter

as may exist from time to time to delay improvements in the mechanism of the former also. It may be added that, though the one interacts upon the other, transportation is the more dynamic factor of the two. These obstacles to the development of trade, which tended to delay the appearance of an interdependent economic organization in the past, and which still function in varying degree among different peoples, are of a diverse character. Professor Clive Day has classified them into four groups. The first group includes those of a personal character. Through years or even generations of living in an accustomed way certain wants and certain methods of satisfying those wants become characteristic of individuals and groups, and in consequence custom bars the introduction of new goods and new methods. Then, too, the suspicious nature of early man, though quite justified by his experience, has been another important subjective obstacle in the way of change. Not only does primitive man suspect the stranger, as shown by the identity of enemy and stranger in the language of many peoples, but he also suspects the nature and integrity of the goods which the stranger offers. Ignorance of goods other than those common to his experience, and the lack of trading machinery which would bring the individual and the new goods into contact, constitute a final personal barrier to progress.

A second significant obstacle to the development of interchange among peoples lay in the risk of loss which threatened from various quarters. It is only within recent centuries that brigandage has been stamped out in Western Europe and so recent has piracy been that the American sailor played an active part in driving the black flag from the Mediterranean Sea about which Western civilization developed. In less advanced sections of the world plundering bands infest the highways even today, and the pirate still plies his trade in many waters of the Orient. Yet the trader feared loss not at the hands of mere plunderers alone. The almost constant warrings of early peoples made him too often the legitimate prey of public enemies. In

addition to these dangers resulting from man's dissensions, the likelihood of loss by the elements was ever-present and important. Many a caravan and wagon-train have strayed during a storm, leaving behind them only the story told by bleaching bones upon desert or prairie. Upon the sea dangers were even more numerous and more grave. *Scylla and Charybdis* represent merely a personification of the dangers faced by the early mariner. To an unusual degree the seafarer of old must have been a man of dauntless courage and of great hardihood.

A third barrier to the growth of trade appears in the numerous political restrictions placed upon commerce. These have been based in part upon the mercantilistic theory that the individual was incapable of intelligently acting in his own interests; in part upon the desire to use the movement of goods as a source of revenue. The early belief in the incapacity of citizen and merchant, unguided by the state, to serve his highest interest, caused the movement of goods into or out of a political unit, often in both directions, to be burdened by a tax in the interests of the public good. It was, however, as a source of income that these restrictions operated most significantly. It is said that in the seventeenth century from Paris to the mouth of the Seine, 15 tolls and national export taxes were levied, and that upon the river Oise, within a distance approximating that from Albany to New York City, there were 18 tolls to be paid. On the river Loire tolls were collected at 74 different points within a distance of about 175 miles, though all articles were not taxed by each gatherer of toll; yet it is said that even though the tolls were paid there was no assurance that the toll-gatherer's agents might not plunder the cargo a few miles beyond. These tolls imposed a double burden: an increase in the cost of goods resulted, with a consequent diminution in the volume of trade, and the considerable time consumed in the collection of toll in money or, particularly, in kind, often caused the partial or complete loss of perishable commodities.

A final obstacle to the development of trade, but a spur to the discovery of more effective modes of transportation, appeared in the many physical barriers which nature has thrown across man's pathway. Impassable ranges of mountains have separated peoples for centuries almost as effectively as though they dwelt on opposite sides of the earth. Oceans and even inland seas have blocked commercial and social intercourse. Rivers which were later destined to become channels of trade proved, for primitive peoples, barriers of no little importance, as indicated by the fact that even today they form the boundary between many nations. Wide expanse of desert area also has been an insulating factor in man's history. At times these natural barriers effectively prevent all trade; more often they have made the movement of all but a few goods of high value unprofitable because of the heavy cost of transportation which must be borne.

Advancement in the field of transportation minimizes each of these obstacles. Improved facilities increase the number of personal contacts tremendously, and thus serve to break down the power of custom as well as to destroy that instinctive suspicion of things new. There is also a multiplication of those desires upon which the development of trade must rest. Risk of loss, too, diminishes as efficiency of transportation increases, because with that improvement has come the elimination of brigandage, the diminution of warring, and the reduction of losses by the elements. Since the modern political state is largely an outgrowth of more efficient transportation it is inevitable that political restrictions should vary inversely with improvement in that field: the enlargement of the political unit by merging principalities into nations has steadily lessened the number of national boundaries to be crossed. And, finally, it is evident that any betterment in methods of movement must lessen the importance of physical obstacles—indeed, such improvement is, in essence, a victory over mountain and stream, over desert and ocean, over distance itself.

PERIODS IN THE DEVELOPMENT OF TRANSPORTATION

Although the development of transportation has been essentially continuous throughout man's existence, certain distinct stages may be discerned. Herrick distinguishes among periods upon the basis of the power used. During the first of these periods man was dependent upon human effort for movement: upon land he dragged or carried the burden, and upon water his muscles likewise served as the source of power. During the second period he came to rely upon other power than his own—upon the animal for movement by land, upon the wind by water. Man probably domesticated animals first for other purposes but they soon served him most helpfully during his wanderings. Upon the water nature was harnessed to the performance of man's will and the movement of the wind-driven craft was directed by the rudder. The third period is characterized by the use of mechanical power, a period so brief as yet that it may be rightly said to have begun but yesterday in man's development. Steam was the first to be utilized, but within the memory of millions now living electricity and the internal combustion engine have been employed to do the work of the modern world, both on land and water. This third period interests us especially because it is so recent, yet it is also of tremendous significance. Herrick but states the conclusion of all students of transportation when he declares that "Man has made greater advance during the past 125 years than in all preceding history."

Another interesting division of periods has been made by Carver upon the basis of the area covered by man. During the first of these periods, the potamic, man traversed land and rivers freely but crept timidly along the shores of inland seas. Gaining courage with experience, and aided by the development of his craft, man navigated the inland seas during the second, or thalassic, period as freely as he had the rivers before, and even explored in hesitating fashion the great unknown—to him the illimitable expanse of ocean.

However, with the perfection of instruments and further improvements in boat construction, the entire water area of the world became man's field. The first conspicuous figure during this third, or oceanic, period was the great Portuguese Prince Henry, the Navigator, though perhaps the most world-famed of these early sailors was Christopher Columbus. In the field of exploration we find man's progress painfully slow during the two earlier periods but in the comparatively short time which has elapsed since the fifteenth century, man has almost wiped out the unknown and has permitted only few portions of the world to remain unexplored.

EARLY MAN'S PRIMITIVE METHODS

It is impossible to give within the confines of a single chapter a full description of the development of transportation, but it is, nevertheless, of value to sketch briefly the course of that development. According to geologist and anthropologist the beginning of the Pleistocene era, which dates back about 400,000 years, witnessed the separation of man into the four great groups known today—the European, the Mongolian, the African, and the Australian. Perhaps 400,000 years previous to this differentiation, during the Pliocene period, the so-called Neanderthal man separated from the common stem. In the Miocene era, which dates back almost a million and a half years, it is thought that the Pithecanthopus Erectus traversed the earth. Still further back, perhaps two million years ago, during the Oligocene era, it is thought that the orang-outang, the chimpanzee, and the gorilla split off from that line which we believe has developed into human life. Possibly two and a half million years ago the gibbon and the siamang appeared, and more than three million years since, during the Eocene period, the monkeys of the new world are supposed to have separated from the main stem. Yet, long as man has been in the course of development, it is doubtful if aught but dragging as a means of transport was known to him earlier

than 600,000 years ago. In short, only in the period since the appearance of the Neanderthal type has any but the most primitive method of movement been employed.

EVOLUTION OF LAND TRANSPORTATION

Progress in land transportation was marked by the employment of the "pack-a-back" method as a first step, and it is probable that, because of the highly developed muscular organization of primitive man, the burdens which could be so carried were astonishingly large. The second step in advance appears in the substitution of animal-power for man-power. Man had domesticated animals for religious and food purposes as well as for pets early in his history, and he learned gradually to employ those types adapted to his purpose as packers and draggers of burdens. This marked a tremendous forward step since it increased both the quantity of the load, and the distance which it could be transported. The third step in the development of land transportation came with the discovery and evolution of the wheel.

Where or how the principle of the wheel chanced to be discovered will perhaps remain forever unknown, but the most reasonable explanation offered is this: primitive man, using a rounded pole as a lever, accidentally permitted that pole to fall beneath the load and discovered that the load moved far easier than it had before—there is nothing in the history of man's development to justify crediting him with the conscious and purposive application of the principle of the wheel to the movement of heavy objects. Once discovered, however, man did set about consciously to develop the wheel. His first step in advance appears in the long roller with axle protruding at either end: upon this axle rested the load. This was later modified by cutting away all but the end sections of the roller and then came, in the course of time, the idea of the wheel revolving upon a fixed axle. Finally those wheels, instead of taking the

awkward form of sections of a tree trunk, were modeled and shaped to give us the modern spoked type. The utilization of animals for land movement was an important forward step, but the advance which resulted from the discovery and later development of the wheel was tremendous. Indeed, next to fire it is perhaps man's greatest single discovery.

The wheeled vehicle was of profound importance itself but its indirect results were of almost equal significance to early man, since it compelled a development of road- and bridge-building which previously had been merely a matter of convenience and therefore but little regarded. To permit the easy movement of wheeled carriages the path was broadened and smoothed into a road, and to facilitate the movement of wheeled vehicles over roads much used, or of great military importance, the constructed highway, which the Romans built so efficiently, appeared. The single log thrown across the stream now became two logs, and eventually a floored structure, while the rude ferry which had sufficed for wider streams no longer served effectively and was displaced among some peoples by crude suspension bridges, among others more advanced, by the arch bridge, perfected and widely used during the Roman period.

The final step in the development of land transportation came with the application of mechanical power to the wheeled carriage. Steam, the most common and simplest source of mechanical power, was first utilized. It was applied initially by means of the stationary engine and cable-wrapped drum, later through the steam-driven carriage of which the locomotive is a common type. More recently, electricity and the internal combustion engine have been utilized and future development seems to lie in the mastery and further utilization of these sources of power.

PROGRESS IN TRANSPORTATION BY WATER

No less interesting than the history of the development of transportation by land is the record of progress by water.

As "pack-a-back" represented man's first forward step on land, so his mounting the single log, using hands and feet for propulsion, marks his first advance by water. Long experience, however, convinced man of the heavy risk incident to this mode of movement and when he discovered by chance the added security of the raft he was quick to adapt it to his needs. Having thus discovered the raft, man then constructed it purposively by lashing sticks together with vines and grasses. A second development of the single log followed a somewhat different line and resulted in the canoe. Appearing first as merely a hollowed log, the dug-out, this type of craft was later constructed by the use of bark or skin. Typical of this development is the birch canoe of the American Indian and the skin canoes of peoples widely scattered in time and place—in Babylon, Greenland, and the Mississippi Valley. From the raft developed the Chinese junk and the European vessel of the type in which Columbus made his journey to America, a type of craft which has been properly called a "glorified raft." From the canoe developed types of greater significance in the navigation of the waters. To secure a vessel more capable of withstanding the elements man devised the constructed boat. Soon appeared vessels of plank of the type made famous by the Norsemen, first with framework inserted and later built about a framework. From this vessel developed by degrees the frigate which differs but little in fundamental character from modern craft.

As important as the evolution of the form of vessel has been the development in methods of propulsion. Undoubtedly man early found hands and feet less satisfactory in making progress than the use of a stick held in the hands. This stick, probably used originally as nature gave it, soon took the form of a paddle and this paddle later became the fixed oar. But here again man's desire to escape muscular effort soon led him to utilize the wind as a source of power. At first, perhaps, nothing but a leafy bough or even a standing figure on boat or raft offered a surface to the wind,

but an actual sail was later employed and tied between two fixed masts. This double mast became a single one with cross arms and in time there developed the boat of many masts, full rigged, as at the opening of the nineteenth century when mechanical power was first employed. This application of power to water movement, first to a wheel, side or stern, later to the propeller as it is used today, was the third and last great forward step in water transportation.

In even a brief chronicle of the development of water transportation mention must be made, at least, of certain seemingly incidental features which are of fundamental significance. The paddle early employed to guide the boat driven by human or air force soon became a fixed oar and this developed, in turn, into the rudder. However, to take full advantage of the wind as a source of power, it was necessary to move against as well as with that force. To accomplish this man was compelled to "tack," a development which is credited to the Chinese, but to tack, a centerboard must needs be applied. Yet another item of tremendous importance in navigation was the discovery and utilization of the compass. The early mariner stood in terror before the open sea not so much because of its obvious dangers but because, beyond the sight of land, during cloudy or foggy periods, he could determine neither location nor direction. This difficulty was met by the Arabs, who mounted the magnetic needle, also of Chinese origin, upon a point, thus enabling the mariner upon an open expanse of water to determine the direction of his course.

THE COSTS OF PRIMITIVE TRANSPORTATION

As might be expected, the cost of transportation by primitive means is high. In China, where wages are approximately 10 cents a day, it is said that a single man with a pole and basket will move about 80 pounds 25 miles a day at a cost of 11 cents per ton-mile, while two men with wheel-

barrows will move 350 to 400 pounds from 18 to 20 miles per day at a cost of about 8 cents per ton-mile. An interesting comparison of costs by primitive and by modern transportation is found in the statement that the movement of a bale of rugs 90 miles by camel cost $4.70, while the movement of that same bale 17,000 miles by steamer cost $4.30. But it is not necessary to go as far afield as China to secure contrasts between movement costs under modern and under more primitive conditions. Prior to the building of railroads westward from the Missouri, charges which now seem almost prohibitive were levied upon shipments. By ox-train, freight moved from Atchison to Denver at a cost of about $100 per ton while similar movements by mule team were said to have averaged approximately 50 cents per ton-mile, or about $250 per ton. The first Colorado gold ores to go out moved by mule team to Atchison and thence by the Missouri and Mississippi rivers to New Orleans for trans-shipment to Wales and the price charged to Atchison was but $40 a ton since a back-haul over a down grade was involved. Upon a wagon-train of merchandise moving from Atchison to Virginia City a total charge of more than $40,000 was assessed. By pack-train, rates were even higher, a common charge being $1 per pound per hundred miles, or $20 per ton-mile. Early transportation costs were comparably high, also, for the movement of persons. The stage fare from Atchison to Denver was $175 and the regular charge from Atchison to Placerville, California, was $225. The transportation of mail by "pony express" cut the time between Independence, Missouri, and San Francisco to 11 days or less, but the cost was $5 per half-ounce.

SOCIAL AND ECONOMIC INFLUENCES OF HIGH RATES

The effect of such high costs upon the social and economic life of a people has been so great that man has made positive and persistent efforts to lessen their restrictive influence by improving the means of transportation. To this end the

early Babylonians built many canals and the Egyptians constructed a waterway between the Nile and the Red Sea. China is estimated to have had at one time 200,000 miles of usable canals, and reliance has been placed upon canal construction as a means of reducing transportation costs in western Europe from a very early day. Invariably these canals were built to supplement river systems which were already intensively used. But the desire to secure more efficient transportation not only furthered canal building; it also stimulated the construction of roads. Aside from serving a distinct trade function, such highways proved of inestimable value in the rapid movement of troops. Like canals, highways were built initially to supplement the waterways, first the rivers and later the canals. The early history of America is replete with instances of road building, the greatest project undertaken being the Cumberland Road, which was never completed because the highway was superseded by the railway as the most efficient means of transportation. The tremendous advantage enjoyed by those cities and peoples which were so situated as to benefit from the cheap and relatively rapid movement which waterways, first the rivers and later the canals, afforded, enabled them to attain first that high place which results from improved social and economic conditions. With the passage of centuries, the center of economic and social gravity moved from the river people to those located upon the inland seas and, still later, the center of power and influence swung to the nations which faced the open waters. To these nations, "scouring the seven seas" in the frail craft of an earlier time or in the leviathan of today, the world is indebted in great measure for that spectacular material progress which characterizes modern times.

HISTORIC TRADE ROUTES IN EURASIA

No subject contains more of human interest, a record of greater success or of deeper tragedy, than the growth and

history of great trade routes. The Phoenicians, first in time among the great commercial nations of history, traded over well-marked routes with Memphis, with the cities of Armenia and of the valley of the Euphrates, with Gerrha on the Persian Gulf and with the peoples of southern Arabia. In addition to these well-used land routes the Phoenicians not only braved the terrors of the Mediterranean but are supposed to have traveled as far north as the British Isles, from which tin was secured. During the Middle Ages three well-defined routes were used in trade between Europe and the Orient. The northern or overland route struck toward the Orient from Novgorod on the north and Trebizond on the south, to Bokhara, thence eastward to a point where the caravan chose between an onward journey to "Cathay" and the southward trail into India. A central route was also much used, goods moving over this route across the Indian Ocean and up through the Persian Gulf, thence to Bagdad by river and overland from there to Antioch or to Alexandria. The southern route was essentially a water route, traffic moving from India by boat to Berenice on the Red Sea, thence overland to Cairo and down the Nile to Alexandria. Within Europe itself during this period a heavy traffic moved along the coast and upon the numerous navigable streams which empty into gulf, ocean, and sea from the Baltic westward, southward, and then eastward to the Black Sea. With the development of more efficient transportation many of these earlier routes have fallen into disuse though others still occupy an important place, as is shown by the fact that the Red Sea remains a highway of commerce between the east and the west and that caravans still journey between Bokhara and Peking.

IMPORTANT AMERICAN ROUTES

Of particular interest to Americans are certain trails which have played an important part in the development of the northern continent. Among these the southernmost was

the Spanish Trail from Vera Cruz to Santa Fe, a route later to be overshadowed by the Santa Fe Trail from the Missouri River to that capital of the Southwest, a trail of particular interest to the writer because of a boyhood spent within a stone's throw of the old roadway over which thousands traveled through a barren country peopled only by warring tribes of Indians and ranging herds of bison. To the northward lay the Oregon Trail, with which the name of Marcus Whitman will always be associated because it was he who first traveled it in his effort to save the Pacific Northwest from British control. Far to the north lay still another, the Canadian Trail, which struck westward from the lakes across the plains country and thence to the coast in the Puget Sound district.

American pre-railway land routes were less important avenues of traffic, however, than those utilizing the water. The eastern section of the United States is well adapted to water movement with the St. Lawrence, the Hudson-Mohawk, the Potomac, the James, and other lesser streams. The central section is also splendidly served by the Great Lakes and the Mississippi-Ohio-Missouri river system, while in the West the San Joaquin, the Sacramento, and particularly the Columbia give access to a broad and rich inland area. The part which these highways of trade, river, lake, and trail, played in the early economic and social development of inland America is difficult for us of the twentieth century to conceive, even vaguely, and almost impossible to overestimate. Had not a more efficient agency been evolved, ocean and lake, river and road would yet be the avenues over which commerce must have flowed.

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RAILWAY TRANSPORTATION

PART I

THE AMERICAN RAILWAY NET

III

THE EARLY DEVELOPMENT OF TRANSPORTATION IN THE UNITED STATES

Natural water routes used by colonists. Important overland routes. Early canal projects in the East. Artificial waterways into the West. The Great Lakes-Mississippi system. Local canal projects. Primitive character of early overland routes. The development of toll projects. Public aid for roadway construction. Transportation costs by land and water. Charges upon overland movements. The cost of canal movement. Economic burden of transportation costs—their influence upon development. Need of improved transportation facilities.

THE natural routes of transportation which a country enjoys are of fundamental economic and social significance in determining the course of its development. But however vital such routes may be, they are of primary concern to the student of railway transportation only as their inadequacy, due to service capacity or location, serves as an added spur to the development of more convenient and efficient agencies for the movement of goods, persons, and ideas. Since no small part of the energies of those who built the economic foundations of this country were absorbed in the effort to overcome certain physical obstacles to the development of trade and commerce by supplementing such avenues as nature had provided, a brief statement concerning the more important routes of travel used by the colonists is desirable as a background for the story of the development of the American railway net.

NATURAL WATER ROUTES USED BY THE COLONISTS

Movement by water enjoys the double advantage of lower cost and fewer obstacles as compared with movement by land. It is not strange, then, that, just as in other unde-

veloped parts of the world, a large part of the early traffic in America moved by water. Two types of water traffic were of importance during the colonial period. Operating between the principal seaports from Maine to Georgia were numerous sailing craft engaged in coastwise trade. Yet more important, perhaps, was the river traffic, because numerous streams gave access to the great inland areas which produced the principal items of colonial commerce —grains, cotton, tobacco, and so forth. Although a few streams of minor importance tapped that portion of the New England coast lying north of Cape Cod, the important waterway giving access to inland territory in this northeastern portion was the Connecticut River. To the westward of the Connecticut lay the Hudson and its tributaries, most important of which was the Mohawk; together, these provided cheap transportation for a wide and productive area. The territory to the south and west of the section served by the Hudson utilized the Delaware River with its tributaries, among these the Schuylkill, and the Susquehanna being the most important in the movement of agricultural products and of coal. This last named stream, through the Juniata and the West and East Branches served, in a most effective manner, much of the state of Pennsylvania as well as a portion of southwestern New York. To the southward lay the Potomac and the James, both of which aided materially in the development of that portion of the country. Farther south and flowing into the Atlantic lay the Santee, the Roanoke, the Savannah, and the Altahama. Tributary to the Gulf were several important streams east of the Mississippi but, because of the slow development of that section, they played only a small part in the early development of the colonies.

The main water route into the west and the one which gave access to a considerable portion of the Northwest Territory, an area of unusual promise and great extent, was the Ohio River and its many tributaries. These reached eastward, southward, and northward into the heart of the

undeveloped section. Most important among those reaching eastward and southward, and generally utilized in the movements of goods and of persons into this new section, were the Allegheny and Monongahela which converged at Pittsburgh, the Kanawha, the Kentucky, the Cumberland, and the Tennessee which entered the Ohio in turn. However, since development west of the Alleghenies had progressed little as compared with that on the east, the waterways which exerted a primary influence upon colonial progress were those which flowed into the Atlantic.

The location of these natural waterways influenced the course of economic development and the distribution of population of the early colonies in a definite way. The large commercial centers were, on the whole, those enjoying the advantages of a trade with inland areas which was made possible by the existence of water routes; the order of the development of inland areas was determined essentially by the courses of these rivers. Furthermore, the location of these streams had an important bearing upon colonial unity. Practically all of the important water routes from tidewater into the "hinterland" lay within a single state or formed at least a portion of the boundary line between states. In consequence, river traffic tended to separate the colonies, the one from another, both economically and socially. Boston and New York, New York and Baltimore, Baltimore and Norfolk, Norfolk and Savannah, were more closely united with England in a commercial way than with each other. Certainly it would seem that nature did little toward building a foundation for colonial unity in America.

IMPORTANT OVERLAND ROUTES

Although water routes were used in so far as possible, these were early supplemented by land routes. At first such roadway development was merely an adjunct to the water courses, but with the passage of time land movement played an increasing part in the economic and social life of the

colonists. Yet the development of land routes into the western territory was distinctly circumscribed by nature—the Appalachian Barrier long served as an effective bar to westward movement. However, it might be added that this bar was perhaps advantageous to the early colonists since otherwise the few millions of adventurous peoples which comprised the population of the 13 colonies at the time of the birth of the United States would have been scattered so widely over the eastern half of the great continent that the establishment of political unity and the maintenance of successful resistance to the British would have been impossible.

The experience of the many thousands who sought entry into the West resulted in the establishment of three rather well-defined routes. The first of these, the Northern Route, led up the Mohawk by water or by road, thence westward to Lake Erie, the southern shore of which was followed in the movement to the West. The Central Route led to Pittsburgh, but three different avenues of approach were used. From Philadelphia traffic might proceed westward to the Susquehanna, thence along the West Branch to the Allegheny and down it to Pittsburgh. Another route from Philadelphia was that afforded by the Juniata River, traffic moving from a point near its source to an east-lying branch of the Allegheny, thence by the Allegheny to Pittsburgh. The third avenue of entry followed the Potomac westward, striking from that river to the Youghiogheny or Monongahela, thence descending to Pittsburgh. The Southern Route led westward from the upper reaches of the James River, through Cumberland Gap and thence west and north to the Falls of the Ohio, the present site of Louisville. This route was used by the tens of thousands who went westward into Kentucky and Tennessee, as well as by many whose destination lay to the north of the Ohio. Several routes were used in reaching the Cumberland Gap from the east, and beyond the Barrier various roads diverged, but the trail which was most used became famed in story as the Wilderness Road, and carried with it many memories of the work of that great

frontiersman, Daniel Boone. Beyond the Ohio, certain trails were much used but, to quote Meyer: [1]

> In general, the development of roads across the mountains and in the Ohio region followed the lines of the old Indian trails. Although the Indian often preferred a water route, for most purposes he used a land route. The more important of these trails ran north and south, following, in a general way, the river courses, but there were several important east-and-west trails. Probably these trails were originally made by animals, but they became, through a process of adaptation, first Indian trails, then roads of the early settlers, and later the commercial highways of the state. . . . These trails followed the water divides, and their origin at those points on the Ohio River which communicated with the settled portions of Kentucky, Maryland, Virginia, and Pennsylvania afforded a convenient and ready route to the Northwest Territory. . . . Incidentally, it is interesting and significant that the routes of all the main trails are today occupied by important railway lines. The New York Central and the Lake Shore followed the old Lake Shore Trail; the Pennsylvania followed the old Mahoning Trail; the Toledo and Ohio Central follows the Monongahela Trail; the Baltimore and Ohio follows the Great or Big Trail; another Pennsylvania line follows the Moravia-Scioto-Beaver Trail; the Hocking Valley, the Sandusky-Richmond Trail; the Cincinnati, Hamilton and Dayton follows the Miami Trail; the Lake Erie and Wheeling, the Muskingum Trail. It is also worthy of note that these were among the first railways constructed and were suited, as the trails were, to form the basis of our modern railway system, since these locations have been topographically, economically, and socially justified in a continuous development of commercial service for a rapidly increasing population and volume of traffic.

EARLY CANAL PROJECTS IN THE EAST

The inadequacy of natural routes of transportation by water and by land served to restrict both the utilization of natural resources and industrial development. It is not strange, therefore, that the attention of the colonists was early directed toward obtaining more adequate facilities. To this end numerous canal projects were proposed. In-

[1] Meyer, B. H., *History of Transportation in the United States Prior to 1860*, p. 6.

deed, even prior to the Revolution attention had been given to certain undertakings, one of which, the Potomac project, enjoyed the active interest of Washington himself. These various projects, purposed to establish cheaper communication, may be divided, with reasonable accuracy, into five groups. The first group is properly termed the coastal system. A series of artificial waterways was suggested which was to make possible a movement of traffic from Boston in the north to Wilmington, North Carolina, in the south without entry into the open seas except for short distances. In the north it was suggested that a canal be cut from Boston to Providence, and another across the narrowest portion of Cape Cod. The second link in this system was the Raritan project which was dug from Brunswick on the Raritan River to Trenton on the Delaware. The third link was to be a canal from the Delaware to the upper end of Chesapeake Bay, while the final project involved cutting through the Dismal Swamp from a point near Norfolk to Albemarle Sound. This coastal system commanded active interest but had not progressed far toward completion when interest in railway building caused canal projects to lose favor.

To facilitate movement into the West, two groups of canals were proposed; the one to connect with western rivers, the other, directly or indirectly, with the Great Lakes. In the former system the clearing of rivers and necessary canalization about falls and other obstructions which could not be removed, played a considerable part. These opened streams constituted, in each case, the major part of the route. The northernmost one of the river projects was the so-called Pennsylvania Portage System which utilized the Juniata River and an eastern branch of the Allegheny, with a portage running across the divide. Farther south the earlier Potomac project was revived, the plan being to move traffic by water as far up the Potomac as Cumberland, Maryland, thence by a constructed highway to the nearest tributary of the Ohio, the Monongahela. To the southward a third project was undertaken with the expectation of making pos-

sible an unbroken water movement between east and west. This plan involved the use of the James River on the east and the Kanawha River on the west, with the construction of a canal between the two. So attractive did this route appear that even as late as the early seventies it received the approval of certain western interests and of the Federal Board of Engineers as providing a cheaper means of movement between the two sections than the railways then afforded. A fourth river project far south was designed to connect the head-waters of the Tombigbee River with the Tennessee by canal. Work upon all of these projects was begun and upon the first three considerable progress was made, though the only one which was completed sufficiently to render any considerable service was the Pennsylvania Portage System.

Two canal projects were proposed to establish water communication with one or another of the Great Lakes and both of these were completed. The more important was to make possible the movement of goods up the Hudson and the Mohawk into west central New York, thence by canals to Lake Erie and to Lake Ontario. The purpose of canal construction in western New York was fundamentally economic, a response in part to the desire of the port of New York to gain major control of trade not only of the western portions of the state, but also of business originating along Lake Erie and upon its tributaries, in part to the desire of those dwelling in western New York to secure cheaper and more adequate transportation for their products eastward. Work was begun seriously upon this project as early as 1793, but through traffic from Buffalo on the west to Troy upon the Hudson was not possible until 1825. The magnitude of the undertaking may be better appreciated when it is realized that the completed canal was 363 miles long with the width of 40 feet at the top and 28 feet at the bottom, and had a minimum depth of 4 feet. The final project was wholly an artificial waterway with the exception of a few miles near the western end, and 83 locks, excluding the

double locks at Lockport, were necessary to raise and lower the boats throughout its length. The second of these projects, the Champlain Canal, was constructed from Whitehall at the head of sloop navigation on Lake Champlain to Troy, where it joined the Erie Canal. Of the 64 miles covered, almost three-fourths represented artificial construction, the remainder the utilization of creek and river. Because of its location, however, it never proved comparable in importance to its sister project which opened the West.

THE GREAT LAKES–MISSISSIPPI SYSTEM

A fourth system of canal was purposed to make possible movement by water between various of the Great Lakes and tributaries of the Mississippi. Moving westward the first of these projects were designed to join Lake Erie with the head-waters of the Allegheny. To this end two canals were planned, one from Erie, Pennsylvania, the other from Cleveland, Ohio. Another proposal involved the connection of Lake Erie with the Ohio by a canal from Cleveland through Columbus to Portsmouth. Yet a third Lake Erie–Ohio waterway was planned from Toledo to Cincinnati. Water communication between Lake Michigan and tributaries of the Mississippi was also planned; one project to connect the Fox and Wisconsin rivers, the other, and the more important, to connect Lake Michigan and the Illinois River. All of these projects were carried through to completion and at least three still render some service.

A fifth group of waterways which commanded interest and which were undertaken on a considerable scale were those that might be classed under the general head of internal improvements. These canals had no single purpose as did the other systems mentioned; each was designed to accomplish some particular object. Most of these projects were small and of minor significance from a national standpoint, though invariably regarded as vital to the community

served. Certain ones were undertaken and carried to completion, the more important being in southern New York and central and eastern Pennsylvania, where the major purpose was to provide cheap transportation to tidewater for coal. Other proposals of a more general character were discussed, such as a canal from Boston to Albany which was to enable New England to share in the western trade. This project, however, as well as others of an ambitious character, was permitted to lapse with the development of the railway. Except for the appearance of this new agency of transportation, canal building would have moved forward with rapid strides after 1825, since the need of better transportation facilities was urgent.

PRIMITIVE CHARACTER OF EARLY OVERLAND ROUTES

Important as the development of waterways was to the early settler, it was even more essential that he obtain efficient land transportation because of the great areas which were not immediately accessible to water routes. Early highways followed the old Indian trails rather closely, but, unfortunately, these highways in many cases represented no advance over the primitive trail except a slight broadening necessary to accommodate wagon traffic. Comments of early travelers are replete with statements which indicate a wholly unsatisfactory condition. One traveler, in speaking of the Albany-Schenectady Road, declared it to be "in shameful condition," while another, in speaking of the road between Baltimore and Washington, stated that it was "in a very rude state, the driver being obliged to wind as well as he could between the remaining stumps." Another writer, in describing this same highway, says, "The roads are so exceedingly bad that a carriage will sometimes sink so deep as to defy the utmost exertions of the strongest horse to draw it forward; and in some parts that would otherwise be totally impassable, causeways constructed of trees are thrown across the road; but these frequently break asunder

and constantly expose a traveler to the most imminent danger. The bridges built across creeks are equally perilous, being formed of a few loose boards that totter while a carriage passes over them. Such is the highroad to the federal city of Washington."

Numerous other comments concerning the condition of roads in the colonies might be given, but perhaps no statement indicates the primitive character of land transportation during this and earlier periods better than the description given of the mail route from Athens, Georgia, to New Orleans. Meyer says, in summarizing this report: [1]

> In some places the road had never been cleared or was greatly obstructed by fallen trees. There were numbers of streams to be crossed, over which there were neither bridges nor ferries, and over the narrowest of which trees were felled, which enabled the post rider to creep across, holding the mail on his back, and swimming his horse. Over the wider streams dependence was had upon canoes furnished by families living near the crossings.

The utter inadequacy of such roads was brought out most forcibly in the course of the War of 1812. Armies operating inland had to hew and build their own highways, with a resultant decrease in efficiency and an increased cost in money and in life. Describing a journey from Wheeling to Maysville, in Ohio, a traveler declares that the roads are, "altogether in a state of nature, the trees only just chopped off about a foot from the ground, and the rocks and stones and gullies left to be gotten over as we can." He describes the successful movement of immigrant wagons and families over the mountains as being "a little less than a continuance of miracles." Another writer states that merchants of Cincinnati who purchased their stocks in Philadelphia required three months for the round trip, while the delivery of the goods required an average of 50 days. Meyer states, "In some sections the roads were so bad that the fact found expression in local terminology and even in names of towns.

[1] Meyer, B. H., *History of Transportation in the United States Prior to 1860*, p. 58.

A New Jersey village enjoyed the suggestive name of 'Long-a-coming,' while a town in Indiana was, in a more realistic way, called 'Mudholes.' " [1]

Not only were the roads all too often in execrable condition, but bridges were as unsatisfactory as they were few in number. Seldom were the larger streams bridged, so it was necessary to ford where ferries were not available. Usually such bridges as existed were of none too safe a character; a poet in speaking of early Virginia bridges characterized them as being,

"Made of a few uneasy planks
In open ranks
Over rivers of mud."

Of the eight streams that Jefferson found it necessary to cross in his journey from Monticello to Washington for his Presidential inauguration, but three could be crossed by bridge.

The type of construction of these early bridges varied widely. Across the narrower streams logs were thrown and planks laid from one log to another, while upon the wider streams bridges were supported by boards, rafts, or piles. So little attention, however, was given to either the construction or maintenance of these important adjuncts to roadway transportation that in any but the highly developed sections Meyer's quotation from Earl fairly characterizes the situation. "The early bridges of provincial days were but insecure makeshifts in many cases, miserable floating bridges being common across the wide rivers."

THE DEVELOPMENT OF TOLL PROJECTS

The wretched condition of roads and bridges made land transportation both slow and expensive. Realizing the need of more efficient transportation and the inadequacy of waterway development throughout great areas, the desirability,

[1] *Ibid*, p. 62.

indeed the necessity, of improving the conditions of land movement impressed itself upon people generally. As a result of this demand for improved land transportation, the last decade or more of the eighteenth century, as well as that portion of the nineteenth century which preceded the acceptance of the railway, was marked by rapid progress in the improvement of both roads and bridges. The first step in this direction came in the development of toll projects. These were built by private corporations with the expectation that the charges collected would be sufficient not only to cover the cost of maintenance but to provide at least an adequate return upon the capital invested. In Pennsylvania alone it is said that 102 companies constructed 2,380 miles of road at a cost of approximately $8,500,000. Similar activity was in evidence in other states, particularly throughout New England and the Middle Atlantic area. Bridge building was also extensively undertaken by private interests as indicated by the fact that prior to 1813, 36 charters for toll bridges had been granted in New York and stock to the amount of $509,000 authorized. The first two bridges across the Hudson were toll-bridges, and many of the important early projects in Pennsylvania were likewise built by private capital. Within six years preceding 1815 Pennsylvania authorized the construction of some 20 toll-bridges.

However, the characteristic failure of toll projects to yield a reasonable return upon the investment caused a gradual loss of interest in these enterprises on the part of private capital. Furthermore, the amount of such capital available in a new territory for undertakings of this character was inadequate to meet the need of the sections concerned. It became necessary, therefore, for the government to extend aid. To meet this very general demand for improved transportation facilities, city, township, county, and state, all became involved in road- and bridge-building projects. Public aid was extended particularly in the newer and less developed areas of the West and South, since it was highly essential to the rapid development of those areas that

satisfactory land transportation be provided between rivers and between rivers and lakes. Indeed, during this period the Federal Government itself was persuaded to give assistance. Such aid was justified by the politically dominant "strict constructionists" upon the ground that it would both provide more adequate military protection and assist materially in the transmission of intelligence from one section of the country to another. It was further recognized that such projects would serve a distinct economic purpose in the development of new areas. The most famous of the turnpikes constructed through federal aid was the Cumberland Road, which was planned to run from Cumberland, Maryland, to Jefferson City, Missouri. Though provision was made for its construction as early as 1806, it was not until 1811 that work was actually begun. Seven years later it reached the Ohio River, and before work was stopped by the panic of 1837 it had been driven westward to Vandalia, Illinois. This point proved the western terminus of the road, since by that time the railway had proved its supremacy in the movement of traffic over long distances.

TRANSPORTATION COSTS BY LAND AND WATER

That transportation charges should be heavy under conditions as described was inevitable and a relatively high money charge was materially increased by the long period of time consumed in the movement of traffic. The charge made for moving goods overland varied generally from 15 cents to 20 cents per ton-mile, 20 cents being perhaps a characteristic figure. The heavy burden of such charges may perhaps be appreciated the more fully when we know that the cost of moving goods from Albany to Buffalo by land was $90 per ton, a similar charge being made for movement from New York to Pittsburgh, partially by water but principally by land. Water movement was, of course, much cheaper, traffic moving down the Hudson from Albany to New York at 15 cents per hundredweight and from

Albany to Buffalo through the Erie Canal at a rate of $8.53 per ton, of which $5 was assignable to tolls. From Louisville to New Orleans a charge of $1 per hundredweight was made, but for the trip up river the rate was $5. A usual charge for the movement of passengers by land was 6 cents per mile. However, the charge rarely dropped lower and often was greater, the movement from Boston to Albany averaging 9 cents and from Charleston to Columbia as high as 30 cents. Water movement was somewhat less expensive than land, though 5 to 6 cents was a common charge, and this type of movement normally consumed much greater time than overland stage. In the West the down-river movement from Louisville to New Orleans cost $75, while the return movement cost $125, the distance being approximately 1,600 miles.

CHARGES UPON OVERLAND MOVEMENTS

In addition to road costs there were toll and ferry charges to be considered. According to Gallatin's report on internal improvements, ferry charges across the Catawba River from 1788 to 1808 were as follows:

For every man and horse.....4*d*
For every foot passenger.....2*d*
For every wagon and team.....3-6*d*
For every rolling hogshead.....1-6*d*
For every two-wheeled carriage.....2-4*d*
For every head of cattle ferried or swum.....3*d*
For every head of sheep, hogs, or goats.....2*d*

Upon Zane's Trace the following tolls were recorded as the charges across the Scioto and Ohio rivers.

	Scioto	Ohio
Man and horse	$0.12½	$0.18½
Man alone	0.06½	0.09¼
Wagon and team	0.75	1.15
Horned cattle	0.06¼	0.09¼

Few records seem to remain of charges made for the use

of toll-bridges, but, again quoting Meyer,[1] "They seem to have ranged from 2 cents for foot passengers, 15 cents for carriages drawn by one horse, 15 cents for two horses, and 25 cents for four horses, up to $1 per carriage. There seems to have been great variation, however."

Charges made for turnpike movements varied rather widely throughout the country but the following, which appears in the act of incorporation of the Philadelphia and Lancaster Turnpike, is reasonably representative and, in addition, shows the detail with which charges were worked out:

> For every score of sheep ⅛ dollar; for every score of hogs, ⅛ dollar; for every score of cattle, ¼ dollar; for every horse and his rider, or led horse, 1/16 dollar; for every chariot, coach, stage, wagon, phaeton, or chaise with two horses and four wheels, ¼ dollar; for either of the carriages last mentioned, with four horses, ⅜ dollar; for every other carriage of pleasure under whatever name it may go, the like sums according to the number of wheels and horses drawing the same; for every cart or wagon whose wheels do not exceed the breadth of four inches, ⅛ dollar for each horse drawing the same; for every cart or wagon whose wheels shall exceed in breadth four inches and not exceed seven inches, 1/16 of a dollar for every horse drawing the same; for every cart or wagon the breadth of whose wheels shall be more than seven inches and not more than ten inches or being a breadth of seven inches shall roll more than ten inches, five cents for each horse drawing the same; for every cart or wagon the breadth of whose wheel shall be more than ten inches and not exceed twelve inches, or being ten inches shall roll more than fifteen inches, three cents for each horse drawing the same; for every cart or wagon the breadth of whose wheel shall be more than twelve, two cents for every horse drawing the same.

This practice of charging lesser sums for broader wheeled vehicles appears to be typical of early tolls—indeed, during the winter and spring seasons there is evidence that the use of certain turnpikes was wholly denied to narrow-wheeled vehicles because of the injury done to the road while in soft condition.

[1] Meyer, B. H., *Transportation in the United States Prior to 1860*, p. 47.

THE COSTS OF CANAL MOVEMENT

As indicative of the charge made for canal movement, the amounts assessed on the Potomac River in 1808 upon the following articles will perhaps suffice:

Per bushel of wheat, peas, beans, or flaxseed	$0.02
Per barrel of pork	0.23
Per barrel of flour	0.11
Per ton of hemp, flax, potash, bar or manufacturing iron	1.12
Per ton of pig iron or castings	0.38
Per ton of copper, lead, or other than iron ore	0.89
Per ton of stone or iron ore	0.19
Per hundred cubic feet of planks or scantling	0.38
Per gross hundredweight of all other commodities and packages	0.06

Tolls upon the Susquehanna Canal were practically identical with those above quoted. A maximum toll was set by New York for movements between the Hudson River and Lake Ontario of $25 per ton, though in 1820 the rate upon merchandise moving through the Erie Canal, so far as it had been completed, was about 2 cents per ton per mile, a rate of 1 cent applying on commodities such as flour, meal, grains, and so forth. For movement through the Ohio Canal which made possible the handling of tonnage upon the Ohio River around the Falls of the Ohio at Louisville, it was specified by charter that $2 might be charged for "each barge, batteau, pirogue or canoe" up to 35 feet in length, with the charge increasing to a maximum of $4 for boats 60 feet long, while 9 cents per foot for each foot above 60 was allowed. For ships or vessels of 90 to 100 tons a lump sum of $11.75 was collected, with proportionately smaller charges for lesser craft, and a rate of 12 cents per ton was assessed against each vessel of from 100 to 400 tons burden.

ECONOMIC BURDEN OF TRANSPORTATION COSTS

Any accurate statement of the total cost of transportation to the people of any particular section during this early period is impossible, but sufficient figures are available to allow an estimate. During 1818, it was estimated that not

less than $18,250,000 worth of merchandise moved from Philadelphia alone to Pittsburgh by wagon at a cost of approximately $750,000. For the three years 1817-1819, the total transportation cost for all goods moved to Pittsburgh has been estimated at about $1,560,000 per year. Since the cost of wagon movement from Philadelphia and Baltimore seems to have varied from $7 to $10 per hundredweight, the result was that only articles of high value could bear the costs imposed by this movement. Such high charges necessarily operated as a restriction upon the industrial development of both new and old areas. Though this situation led to that diversification of industry characteristic of the independent community, Meyer declares that "any incidental advantages were certainly inconsiderable in comparison with the economic disadvantages consequent upon isolation and remoteness from markets for agricultural products." Not only did this high cost of movement prejudice the interests of the East in the newer territory but it also handicapped western producers in the Atlantic Coast market. In speaking of the effect of inadequate transportation facilities upon home industry the following statement is made:

> A ton of goods by weight or measurement (of 40 cubic feet) was frequently brought from Europe, a distance of 2,000 miles, for 40 shillings, or about $9: this rate admitted salt, coal, stone, lumber, and most bulky articles which were imported from beyond the seas cheaper than they could be conveyed for a short distance by land, since a ton of goods could not be carried on good roads, for the same price, more than 30 miles. . . . A coal mine might, therefore, exist in the United States not more than 10 miles from valuable ores of iron and other materials and both of them be useless until a canal were established between them, as the price of land carriage was too great to be borne by either.[1]

Even the cost of water movement was such by canal or river-boat, and by coastwise vessels, that:

> Goods were frequently brought from Europe at nearly as low

[1] "Observations Respecting the Chesapeake and Delaware Canal" as quoted by B. H. Meyer in *History of Transportation in the United States Prior to 1860.*

a cost as they could be conveyed by sea from Baltimore to Philadelphia, cities which by land are not more than 100 miles from each other. This was remarkably the case with respect to coal, which was brought into most of our maritime cities from Liverpool and sold as cheap as it could be brought to them from James River, not one-sixth of the distance.[1]

NEED OF IMPROVED TRANSPORTATION FACILITIES

Inasmuch as distance is fundamentally a matter of time and cost rather than of miles, it may rightly be said that the United States was a country of "magnificent distances" even at the close of the eighteenth century, and before its great territorial expansion. A comparatively small portion of the total area of the United States is accessible by natural waterways. Canal construction was incapable of serving more than a relatively small additional area with even partial adequacy except as prohibitive building and operating costs were assumed. The United States was, therefore, peculiarly in need of a more efficient system of land transportation than that which was known as late as 1825. The almost unlimited natural resources scattered over a broad expanse of territory gave unusual opportunity for improved transportation agencies. Of this, convincing evidence is given by the ready acceptance of the railway once its success was assured and the tremendously rapid expansion of mileage in the face of adverse conditions during the first half-century of development.

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[1] "Observations Respecting the Chesapeake and Delaware Canal" as quoted by B. H. Meyer in *History of Transportation in the United States Prior to 1860.*

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IV

BEGINNINGS OF THE AMERICAN RAILWAY NET

American railway history divided into four periods, beginning with 1830. Development of the track. Evolution of the car. Importance of the locomotive. Early use of steam. The first applications of steam to land carriages. The work of Trevithick. The interest and work of Evans. Further progress—the Rain Hill trial. American interest in the railway. Initial locomotive operation. The railway as an effective transportation agency. Early engineering problems: the roadway. The problem of power. Diversity in track gage. Difficulties of train operation. Public opposition to the railway. Inadequate supply of capital. Railway construction at the close of the first period. Forces behind railway building. Summary.

AMERICAN railway history has been divided into various periods by those who have sought to present its important features in an orderly way. By some the extension of mileage has been used as a measure, by others the nature of inter-railway relationships, and by yet others the extent and character of public regulation. Even less important features of railway development have been made to serve as a basis of division. To the writer, however, any single yardstick fails to give proper place and emphasis to the operation of others. In the division of the railway era, now closely approaching its centenary, it has seemed desirable to combine as nearly as possible, therefore, several bases, with primary emphasis upon the growth of the railway net and upon the relations existing between the railway and the public. Using this composite measure, railway history from its beginnings until 1920 seems to fall into four periods. Of these the first closed in 1850 and the second in 1873. The third, and one of the most important because within it were the seeds of the "railway problem" of today, ended in 1893, while the most recent period terminated in 1920 with the close of federal control. The reasons and conditions justifying the selection of each date as the end of one period and the beginning of another will be set forth in succeeding chapters.

Practical railway development, both here and abroad, dates from 1830. No agency such as the railway, however, springs into being fully developed: back of it lie long years of patient effort marked by almost imperceptible progress. Back of it, too, will always be found the deep interest and the life work of many men. Indeed, before the railway was accepted by the public it had become the grave of the highest hopes and of the life endeavors of more than one pioneer in the field. But this development was essentially mechanical in character and, hence, a detailed history of it lies beyond the scope of this treatise. Nevertheless, it is not amiss to describe briefly the evolution of this new agency before presenting the story of American railway progress.

DEVELOPMENT OF THE TRACK

Of the three major elements constituting the railway as we know it today, the track, the car, and the locomotive, the track first approximated its modern form, perhaps because it is the simplest of them all. The earliest form in which it appeared was that of parallel planks laid end to end, upon which small carts or cars were drawn. As experience was gained with the plank track, the ends were joined in such fashion as to prevent their getting out of alignment and later, to prevent the space intervening between the parallel planks from becoming greater or less than the tread of the carriages used thereupon, cross pieces were used at intervals. These were known as ties or sleepers. Although oak and other durable woods were used in constructing the track, the planks deteriorated so rapidly that the plan was conceived of facing them with strips of iron, which were usually about a half-inch thick and from two to three inches wide. Still later, the development of iron-working made the transition from plated wooden rails to rails of cast iron easy and natural, a transition which represented a distinct step forward in roadway construction.

When first introduced, about 1767, the cast-iron rail car-

ried a flange on the outer edge to prevent the carriage from slipping from the track. Subsequently, this flange was transferred to the inner edge of the rail, and in 1789 a further advance was made by removing the flange from the rail and transferring it to the wheel. Upon the wheel it has remained to the present day. Under heavier loading, the cast-iron rail proved unsatisfactory because too brittle for the purpose, and another significant advance was made in the substitution of the long wrought-iron rail for the short sections characteristic of its cast-iron predecessor.

There is no clear record of the earliest use of the track. It seems certain, however, that it developed in English collieries about 1600. The first definite record of such use is in 1630, when a Mr. Beaumont laid down wooden rails from his coal pits near Newcastle to the riverside. In speaking of this early track Stretton states that it consisted of "cross sleepers placed about two feet apart upon which were nailed wooden planks or rails six feet long and about four inches wide. This pioneer of progress also introduced four-wheeled wagons to run on the wooden ways instead of the ordinary two-wheeled carts. Like most men, however, who sought to make innovations upon English methods, Beaumont lost his fortune in the attempt and emerged from his reforming schemes reduced to poverty." As early as 1671, there is evidence that the track had come into use in manufacturing establishments to facilitate the movement of materials about the plant, and from that time forward its use broadened until by the middle of the eighteenth century the track was widely employed and for a diversity of purposes throughout England.

In America, however, it appears that the first railway was not constructed until 1807—a short line ascending Beacon Hill, Boston. In 1809, 1810, 1818, and 1825 other short stretches of track were built in Delaware, Virginia, Pennsylvania, and New Hampshire, but it was not until 1826 and 1827, with the building of the Quincy and Mauch Chunk lines, upon which stationary engines were used to

handle loads on inclined planes, and the Delaware and Hudson project between Carbondale and Honesdale, that this new means of transporting goods was put to practical use. This last-named railway was 16 miles in length and, like the Mauch Chunk undertaking, was designed to facilitate the movement of coal. Later construction here was so closely identified with the railway as it is known today that it falls rather within the developmental period than that which precedes it.

EVOLUTION OF THE CAR

The second essential element of the railway to receive consideration was the car. Upon the early plank tracks single, heavily loaded wagons or cars were operated. Because of the frequent replacement of track made necessary by this concentration of burden, the load was distributed later among several smaller cars and these, linked or chained together, were operated as a train. This plan had the further advantage of increasing the tractive capacity of the motive power employed. The development of the car was slower, however, than of the track; at the time that track, car, and locomotive first functioned together, this particular element was still in primitive form. However, this tardy development resulted, in part, from the peculiar conception which was entertained for many years with regard to the nature of railways: it was thought that, as common carriers, they were open at will to the use of all upon the payment of a reasonable toll; also that individual users should furnish their own cars. Indeed, when horses were still used to draw the cars, the patron was often expected to furnish even his own motive power!

IMPORTANCE OF THE LOCOMOTIVE

So long as the railway was compelled to rely upon animal power for traction or, indeed, upon aught but steam power

applied to the locomotive—at least two of the early railways in the United States experimented with the sail and many with the stationary engine and drum—it could not be regarded as more than an improved roadway and at best a possible competitor of the canal and canalized river. Its future as a dominant factor in the movement of goods and persons depended upon the building of a successful locomotive, a goal which was attained to the general satisfaction of the public by 1830; so railway development may be said to date from that year. The evolution of this final and all-important factor in the success of the railway, justifies a somewhat detailed description. To indicate the successive steps in its development, is, therefore, our next problem.

EARLY USE OF STEAM

The evolution of the locomotive, unlike that of the track and the car, has associated with it in a very definite way the names and the accomplishments of a certain few outstanding figures. The machine that proved its supremacy in the great test at Rain Hill, by which the place of the locomotive was made secure against all other sources of motive power, was the product of the brains of many men, the culmination of the hopes and efforts of many earnest workers, the prophets of a new order who were quite without honor both at home and abroad! To Papin, the Frenchman, goes the honor of the first step in the utilization of steam. In 1695 he perfected a stationary engine which produced a vacuum by the condensation of steam. Power was thus derived alternately from the steam and the pressure of the air. In 1713 the natural boyish preference of the lad, Potter, for play rather than for the task of opening and closing valves by alternately pulling certain cords led him to so attach those cords to the mechanism so as to make the operation automatic. In 1720, Leupold further improved the engine by employing high-pressure steam, using "two single-acting cylinders placed upon the boiler, each with a steam pipe pis-

ton moved alternately by steam admitted through a four-way cock."

The first serious effort to utilize steam for the propulsion of land carriages was made by a French artillery officer, Nicolas Cugnot. Desiring a more effective source of power for the movement of artillery than that furnished by animals, he endeavored to utilize steam to that end. With no guide but his own ingenuity, Cugnot constructed a mechanism which was, despite all defects, little short of remarkable. The contrivance was mounted on three wheels of which the front served both in guiding and in the application of power. Over it was placed the engine and projecting before it was the boiler, which resembled nothing so much as a huge kettle. Although the machine traveled at a speed of but two and one-half miles per hour, and labored under the additional handicap of a steam supply which was inadequate for more than 15 minutes' continuous operation, yet to Cugnot, because of results thus attained in 1769, belongs the honor of moving the first land carriage under steam power.

To Oliver Evans, of Philadelphia, goes the honor of making the next important step in the development of the steam locomotive. In 1779, he perfected the high-pressure, non-condensing steam engine and introduced the multitubular boiler to the end of increasing both heating area and fuel efficiency. But Murdoch, an assistant to the Dean of Steam, James Watt, was the next man to make serious effort to apply steam power to the driving of vehicles. Despite Watt's opposition to the use of high-pressure steam, he had himself obtained a patent for a carriage to be operated by high-pressure steam as early as 1769—but at this point he stopped. Henceforth Watt opposed bitterly any proposal to proceed further in the use of this "dangerous force" and its application to land movement. However, the assistant, who sensed the possibilities in this field as the arrogant master did not, continued to interest himself in the matter until, in 1784, his machine was ready for trial. In connection

with these trials the story is told of the terrible fright of the venerable Vicar of the parish "whose quiet and peaceful walk in a lonely lane leading to his church, one serene evening, is suddenly broken in upon by what to his horror appears as an indescribable creature of legs, arms, and wheels, whose body seems glowing with internal fire, and whose rapid gasps for breath indicate a fierce struggle for existence. The reverend man's cries for help speedily bring Murdoch to the scene, with the assuring explanation that the terrible apparition is not an incarnation or a messenger of the Evil One, but only a runaway engine." With this contrivance its builder was able to attain a speed of from six to eight miles an hour—but further work in its development must be done at the expense of losing his position with Watt, who had become violently antagonistic. Inasmuch as his place meant more to Murdoch than further work in this field, the "carrying on" remained to others at a later date.

THE WORK OF TREVITHICK

The next important figure in the development of the locomotive was Richard Trevithick, a Cornishman. After constructing a model which operated successfully as early as 1796, he interested himself in the building of successive engines of working size after the expiration of certain of Watt's restrictive patents in 1800. His first creation appeared in 1801 and proved a success. It attained a speed of four to five miles per hour and made moderate grades without difficulty. This locomotive was operated by high-pressure steam and utilized Evans' idea of the multitubular boiler. The two main difficulties lay in maintaining steam pressure and in obtaining adhesion adequate to give tractive power. Despite the promise of success which his work gave, Trevithick encountered bitter opposition, particularly at the hands of Watt, who insisted that, for his persistence in the use of high-pressure steam, Trevithick "ought to be hanged." Yet this pioneer's work was such as to keep alive a discussion

of the relative merits of high- and of low-pressure steam and of the possibility of utilizing steam for the propulsion of land carriages. As a result of this controversy a wager was made, to win which Trevithick constructed his second engine. To succeed, it was necessary that the locomotive should draw, by its own power, wagons containing 10 tons of iron upon a tramway in South Wales.

Operating with an elevation of one foot in fifty and in the face of other obstacles, the locomotive built by this Cornish genius met every requirement and hauled the specified load at a rate of about five miles per hour. "The first movement by steam upon rails in the world is an accomplished fact." In 1805, Trevithick built another and simpler machine, after which he turned his attention to other matters until 1808, when his last and most effective locomotive was built. Determined that London should see with its own eyes the degree of progress made, this last product was exhibited there upon a circular track built especially for it. The weight was about 10 tons and a speed of from 12 to 15 miles per hour was attained. Finally, after some weeks of operation, a rail broke and the locomotive was overturned. Trevithick, out of money and with no influential friends to aid him, hopeless of success and utterly discouraged after a battle of almost 10 years, gave up. He was later laid to rest in a pauper's grave.

THE INTEREST AND WORK OF EVANS

In the meantime, Oliver Evans, the American, had again interested himself in the application of steam to the movement of wheeled vehicles. In 1786, his application to the legislature of Pennsylvania for permission to introduce the new idea was refused, but in Maryland he was more fortunate. Full of enthusiasm, he predicted that "the time will come when carriages propelled by steam will be in general use for the transportation of passengers as well as goods and will travel at the rate of 15 miles an hour or 300 miles

a day." Not until 1804, however, did Evans apply his idea of land movement by steam in a practical way. Without independent means himself, and lacking requisite financial support for inventive work, his efforts were consumed in making a livelihood and in improving the stationary engine. In this year, however, he moved a 20-ton dredge, which he had built for the city of Philadelphia, some distance from the point of construction to the Schuylkill River, employing steam as motive power. Then, utilizing that same source of power in the turning of a paddle-wheel, Evans steamed down the Schuylkill and up the Delaware some miles to the point of delivery specified! Despite the faith of the inventor and in the face of his demonstration, support was not forthcoming and opposition was strong. Indeed, as late as 1812, he declared in a discouraged tone, "When we reflect upon the obstinate opposition that has been made by a great majority to every step towards improvement; from bad roads to turnpikes, from turnpikes to canal, from canal to railways for horse carriages, it is too much to expect the monstrous leap from bad roads to railways for steam carriages at once. One step in a generation is all we can hope for. If the present shall adopt canals, the next may try the railways with horses, and the third generation use the steam carriage."

FURTHER PROGRESS—THE RAIN HILL TRIAL

Yet, as the situation developed, the pessimism of Evans was unwarranted, for, from about this time onward, interest in the new idea quickened and many men concerned themselves in the development of the steam locomotive. Most prominent among these was George Stephenson, who began his work somewhat inauspiciously in 1813 but who, fortunate in his support and in the positions which he occupied, continued undiscouraged in his efforts with the locomotive until his final triumph in the Rain Hill trial. Of equal importance, however, in making possible this sweeping

triumph, was the building of railways during the period of Stephenson's development of the locomotive. In England, the Stockton and Darlington, with a length of 37 miles, was projected in 1817, and in 1822 the building of the Liverpool and Manchester was proposed, while in the United States, Pennsylvania authorized the construction of a railway from Philadelphia to the Susquehanna in 1823. From this time forward, progress was rapid and ultimate success probable, since public interest had at last been thoroughly aroused. Many locomotives of widely varying type were built in England and several in America, while in England the Stockton and Darlington utilized the locomotive as a source of power. This experiment, however, was proving not wholly satisfactory and only the excellent work of Hackworth, a former pupil of Stephenson, prevented the abandonment of steam in favor of horse power.

By common consent, the Liverpool and Manchester project came to be regarded as the test of the practicability of the locomotive, and upon its acceptance of steam power depended in large measure the immediate future of that mechanism. Although Stephenson was chief engineer of the property, the directors were undecided as to the type of power to be used—steam or horse. Finally, despite doubts as to success, the board decided upon a public trial with the following essential conditions: the successful engine shall effectually consume its own smoke; if weighing 6 tons, be capable of drawing regularly on a level plane a gross weight of 20 tons, including tender and water tank, at the rate of 10 miles an hour; boiler pressure of the steam must not exceed 50 pounds; and the boiler must rest on springs and be carried on 4 wheels. The trial was held upon a level stretch of track at Rain Hill, over a distance of 1½ miles with an additional ⅛ mile at each end to gain speed and to stop. Conforming sufficiently to specifications to permit participation were three locomotives, the Rocket, constructed by Stephenson, the Sans Pareil, by Hackworth, and the Novelty, by Ericson.

The results of the trial were most gratifying to the champions of this new source of power. Because of mechanical difficulties the Novelty was early compelled to withdraw, though not before attaining a speed of almost 40 miles per hour. The Sans Pareil was unable to complete the test because of minor troubles, but it made a highly creditable showing, averaging approximately 15 miles per hour and attaining a maximum speed of almost 23 miles per hour. The Rocket succeeded beyond the expectations of all but its most enthusiastic champions, completing the trial with an average of about 15 miles per hour and attaining a maximum speed of slightly more than 29 miles per hour. The winning locomotive has "a cylindrical boiler 6 feet long, 3 feet in diameter, with flat ends. The upper half is used as a reservoir for the steam and the lower half is filled with water. Extending through the lower part there are 25 copper tubes, 3 inches in diameter, forming a passage from the fire-box to the chimney. The fire-box is 2 feet wide and 3 feet high, located immediately behind the boiler and surrounded with water. The cylinders, two in number, are placed one on each side of the boiler in an oblique position, one end being nearly even with the top of the boiler, and the other pointing toward the center of the foremost driving-wheel with which connection is made from the piston-rod by a joint to the outside of the wheel. The weight of the engine is 4½ tons." An additional principle of significance was embodied by Stephenson: exhaust steam was successfully utilized to create a draft for the purpose of quickening combustion.

The unqualified success of the Rain Hill trial put the stamp of engineering and public approval upon the steam locomotive. The period of struggle for recognition was ended—there now remained but the task of adapting and perfecting this instrument of progress. To Stephenson has been given almost entire credit for the development of the first successful locomotive. Undoubtedly great credit is due him, for it was he who so combined ideas as to make hope

a reality, whose execution made possible the earlier attainment of the goal. Yet none of the essential principles involved in the construction of the Rocket was original with him. He was indebted to Evans and those who followed his lead for the multitubular boiler and for the high-pressure, non-condensing engine; to Hackworth, a competitor in the trial, for the idea of utilizing exhaust steam to hasten combustion by means of a forced draft; to Trevithick and to others for the lessons which could grow out of practical experience alone. Almost beside him and, certainly in the case of Evans, the disappointed American, and Trevithick, the persistent Cornishman, entitled to equal credit with him, stand a group of men who will always remain "unheralded and unsung," but who contributed generously in effort and in enthusiasm toward the attainment of final success.

AMERICAN INTEREST IN THE RAILWAY

In America, just as in England, interest in the railway as a supplementary, even a rival, agency to the canal developed rapidly during the decade prior to 1830. As early as 1824 there was formed in Philadelphia the Pennsylvania Society for the Promotion of Internal Improvements in the Commonwealth, with a primary interest in railway construction, an interest which had been stimulated by the enthusiasm and persistence of Evans and John Stevens, another early advocate, as well as the comparative success of English tramways and the growing realization of the inadequacy of the canal as an agency suited to the needs of America. In 1825, this society sent an engineer to Europe to study work done and experiments under way there, particularly with reference to grade, roadway construction, and "locomotive machinery" which "is entirely unknown in the United States." Further evidence of this growing interest and of the increased realization of the possibilities of the railway, even without the locomotive as a source of power, appears in the formulation of plans for the construction of the Balti-

more and Ohio as early as 1827 and the chartering of the Charleston and Hamburg, later the South Carolina Railroad, by the legislature of that state in the same year. A suggestion was also made in 1825 by the governor of Massachusetts in his legislative message, of the possibility of joining Boston with Albany by railway and this suggestion was approved by a committee of that body in an exhaustive report made four years later. The first line of any importance to be built, however, was in 1826—the Quincy Railroad, the purpose of which was to move to tidewater stone intended for use in the construction of the Bunker Hill Monument. This line, like the Mauch Chunk and Delaware and Hudson projects, was constructed for a private purpose only and, therefore, though contributing to the general movement, did not represent a direct step toward the railway as a public agency. The Boston, Philadelphia, Baltimore, and Charleston projects gave more conspicuous evidence of development in that direction.

INITIAL LOCOMOTIVE OPERATION

Despite the tremendously important early work of Evans in America, the mechanical ingenuity of his contemporaries and successors seems to have been absorbed largely in fields other than that of locomotive development. For this situation the unwillingness of capital to furnish necessary funds for experimentation was responsible in great measure. Reed, in 1790, and Stevens, at a later period, as well as Evans, received no support whatever. It is not strange, therefore, that the first locomotive operated in America, the Stourbridge Lion in 1829, was one of English manufacture, though it might be added that as early as 1825 Stevens constructed a model which made two miles per hour upon a small experimental railway. This English locomotive was ordered for the Delaware and Hudson by Horatio Allen and, with Allen at the throttle, the first locomotive run in America was made. Brief trial indicated clearly, however, that the

Lion was so ill adapted to the light roadway and the sharp curves of the road out of Honesdale as to make its operation dangerous; it forthwith went to the shed. Americans now became interested in locomotive construction, and in 1830 the first American-built locomotive was ready for service.

This locomotive was none other than the "Tom Thumb," so called because of its diminutive size, its total weight being but about a ton. It was essentially the product of the mechanical genius and the persistence of Peter Cooper, a New York merchant, who had come to believe that the only way to realize upon an investment made by him in Baltimore real estate was to assure the success of the Baltimore and Ohio railway project—and its success hinged largely upon a utilization of steam as motive power. After the failure of a first effort in 1829, he sought the aid of a Baltimore mechanic named Johnson, and in August of the following year a successful trial was made. During this test the diminutive locomotive drew a load of approximately 4½ tons over a poorly constructed roadway and around sharp curves at an average speed of more than 12 miles per hour. In commenting upon this accomplishment Winans, an engineer on the road, declares that when due regard is given to the conditions of operation controlling the tests of the "Rocket" and this American product, "the superiority of 'Tom Thumb' is very strongly apparent." Yet the first railway definitely to abandon all thought of the use of horses in connection with operation was the Charleston line which put into service this same year the second American-built locomotive, the "Best Friend." However, the Baltimore and Ohio has the distinction of being the first railway in the world to hold forth as a common carrier, its service dating from May 22, 1830.

THE RAILWAY AS AN EFFECTIVE TRANSPORTATION AGENCY

Although American railway development may properly be said to have begun prior to 1830, that year, nevertheless,

represents the beginning of railway construction of an effective character. This initial period of development which continued to 1850 was characterized particularly by experimentation. It was distinguished further by the building of short lines in contrast to the more extended properties which resulted from continuous construction and consolidation during later periods. Despite the fact that the position of the railway seemed assured at the beginning of this period, there remained certain important and difficult problems to the solution of which the efforts of those interested in railway development were largely devoted.

EARLY ENGINEERING PROBLEMS: THE ROADWAY

As might be expected in view of the primitive character of railway construction, among the outstanding problems to be met were those incident to the building and operation of these properties. One of these was concerned with the road-bed itself. Engineers first sought to construct a solid and relatively indestructible base. To this end the Boston and Lowell, and later the Baltimore and Ohio, laid rails upon granite supports. Such a roadway proved so unyielding, however, that equipment suffered seriously. Therefore, within a few years all thought of further construction of this type was abandoned and the desirability of a more elastic road-bed recognized. But it was only after extensive experimentation that a satisfactory type was developed. Indeed, it is said that in the construction of the early portion of the Baltimore and Ohio every known mode of track construction was tested, including "the iron on the granite sill, the wood and iron on stone blocks, the wood and iron on wooden sleepers, supported by broken stone, the same supported by longitudinal ground-sills, the log sill formed of the trunks of trees worked to a surface on one side to receive the iron and supported by wooden sleepers cross-wise, together with wrought iron rails"[1] of English make. No

[1] Pangborn, *The World's Railway*, pp. 85-86.

dominant figure, such as Stephenson, here influenced the direction of development and in consequence initiative was given freer play and progress was more rapid. Yet another type of track construction which was tried upon an extended scale was that of building upon piles. In following out this plan the New York and Erie Railroad is estimated to have lost a million dollars directly beside other lesser sums in repairing the error. Finally, however, the type of construction characteristic of road-bed building today proved so satisfactory that it gained universal acceptance.

A second important construction problem, but one which affected equipment rather than roadway, nevertheless grew out of the physical character of that roadway. In England gradients were low and curves were of sufficient radius to present but slight difficulty to the locomotive builder. In America, on the other hand, gradients were heavy and curves sharp. Several facts explain this difference. The inadequate supply of capital compelled the early railway corporation to economize sharply and, as a result, the road often ran up hill and down dale when cuts and fills would have greatly simplified the problem. Then, too, it was quite natural that this improved agency of transportation should follow the old trails. Oftentimes, certain areas were accessible only by the winding trails long traveled by Indian and pioneer and often, too, to depart far from these trails would have deprived the railways during the early years of operation, years destined to be lean at best, of considerable traffic which the more settled sections along the older pathways of commerce were able to furnish. Finally, the lack of capital during not only this period of railway building but even later made the railway peculiarly responsive to local offers of aid and the highest bids rarely came from localities which constituted a direct route. To enable the locomotive to take the numerous and sharp curves with less likelihood of injury to track or mechanism and consequent derailment, various plans were suggested. Among the strangest of these were devices which might be character-

ized as props, extending at an angle from the sides of equipment in use and reaching groundward almost to the roadway—their purpose being, in case of threatened derailment and overturning, to maintain the particular piece of equipment to which attached in an upright position. Far more practical and of great significance was the development of the swivel truck which gave greater flexibility, and the use, too, of the pony or guiding truck upon the locomotive, which reduced the likelihood of derailment when rounding curves.

THE PROBLEM OF POWER

Yet another important construction problem involved the question of power. There was an almost universal absence of faith on the part of even locomotive enthusiasts in adhesion as a basis of tractive power. To meet this presumed difficulty, and one which was the greater in America because of the heavier gradients here encountered than in England, many and peculiar devices were suggested. By some it was proposed that the locomotive be equipped with extra wheels fitted with knobs and claws, while others felt that the solution of the problem lay in the direction of operation by means of a third or rack rail similar to that used by modern cog railways. Possibly the strangest device proposed was the so-called "mechanical traveler," a contrivance difficult to describe in detail but resembling more than anything else, perhaps, the hind legs of a great grasshopper and intended to operate in such manner as to propel the locomotive forward by the alternate movement of the two "travelers" with which it was to be equipped. Finally, however, engineers discovered that reliance might be placed upon the friction between the rail and driver. Thus another basic problem was solved.

A second power problem arose through the difficulty which the early American railways had in securing satisfactory locomotives. Those of English construction, of which the Stourbridge Lion was typical, proved too heavy for the

light track and bridges in America, and ill adapted to the sharp curves encountered. To meet this situation, Americans from varied walks of life, engineers, watchmakers, and business men, interested themselves in the problem of constructing locomotives suited to the peculiar conditions by which the railway was here confronted. As might be expected, the types of locomotives constructed varied widely, but it was not long until the characteristic lines of the locomotive as it appears today were generally accepted. Though the construction of locomotives was at no time confined to a few plants, a small number of builders soon occupied a commanding position in the field. Among these was the West Point Foundry Works, which, in 1830, put the "Best Friend" into service on the Charleston and Hamburg Railroad, and in 1831 the "DeWitt Clinton" on the Mohawk and Hudson, and the "West Point" on the Charleston and Hamburg. Another concern which early occupied an important position, and still holds an important place in the field of locomotive construction, was that headed by Mathias Baldwin, of Philadelphia, whose first engine, "Old Ironsides," was put into service in 1832.

Those efforts which were early made to adapt the locomotive to American conditions resulted in the adoption of the swivel truck already mentioned. Two additional problems of major importance remained: the one of keeping all drivers upon the rail at all times, despite the inequalities in the light and cheaply constructed roadway, the other of giving the drivers a small measure of lateral flexibility to facilitate the taking of the sharp curves so frequently found. As a solution of the first difficulty there appeared the equalizing beam, a combination of levers which keeps each wheel of a set of drivers in contact with the rail at all times. This device lessened the likelihood of breakage through overburdening a portion of the drivers and increased, materially, tractive capacity over that possessed when one, or more, of a set of drivers was lifted from the rail. To meet the second difficulty the flexible beam truck

was developed which permits a sufficient lateral movement of each pair of drivers as to make possible an adjustment to all but the sharpest curves in the roadway. Other problems incident to motive power arose, but they were of comparatively minor importance and their solution was not vital to the successful utilization of the locomotive.

DIVERSITY IN TRACK GAGE

Another matter which was essentially a construction problem, though its results were broad, was that of the gage of the track. English gage was made equal to the wheel base of the early English road-cart, which measured 4 feet, 8½ inches from inside rim to inside rim. In America, however, except on roadways built to conform to English standards of locomotive construction, the gage varied greatly. English standard gage was the usual minimum, indeed, with variations up to as great as 6 feet upon certain of the earlier lines. However, standard gage, as the 4 feet, 8½ inches came to be termed, was generally adopted by railway builders in New England and in the Middle West, but in the South the gage was typically 5 feet, while in New York, Pennsylvania, and other adjoining states, gage varied from as low as 4 feet to as high as 6. In Pennsylvania and Ohio alone there were 7 different gages, 6 of which varied between standard and 4 feet, 10 inches. As an immediate result of this situation, cost of movement was increased both because of the expense of transferring interline shipments and because of the delays resulting from these transfers. Another unfortunate result, though perhaps less immediate and tangible in character, was the stimulation of individualism among the various carriers and their consequent failure to attain earlier that degree of cooperation which is essential to successful railway operation and to the equitable treatment of shippers under competitive conditions. The universal adoption of standard gage by all except avowedly narrow-gage properties, was almost a half-century in coming.

DIFFICULTIES OF TRAIN OPERATION

Difficulties incident to train movement also limited the capacity of the property to serve and proved most troublesome during the early years of railway development. Two conditions gave rise to difficulty—the lack of any rapid means of communication such as is today afforded by the telegraph and telephone, and the conception of the railway during this early period as a specialized turnpike, a "common road" available for use to all. Until telegraphic communication was established on the railways about 1850, the expeditious movement of trains presented great difficulty. Various methods were used, though none proved more than stop-gaps. Schedules were carefully drawn and points of meeting were definitely fixed; so long as all went well and no efforts were made to insert extra trains, operation proceeded smoothly. However, during these early years when railways were least able to deal with the unusual, the unusual was particularly likely to occur—roadway, car, and locomotive all were but little beyond the experimental stage. On some lines if one train failed to meet another at the appointed place or did not reach its terminal within a reasonable period, a "voyage of discovery" was undertaken by rail or even by horse, in some cases, to determine location and difficulty with a view to performing rescue service! Some lines endeavored to establish primitive signaling. Of the system employed by the New Castle and Frenchtown as early as 1837 the following statement is made: "The poles were of cedar . . . and had cleats fastened on them, forming a sort of Jacob's ladder. The signaling was done thus: the operator would go to the top of the pole forming his station, and with his spyglass sight the next station in the direction of the approaching train. If the train was coming and the signal showed a flag, it meant all is well. If a big ball was shown, and no train in sight, it signified an accident. . . . These signals were methodically exchanged until an understanding was had from one end of the road to

another." In the absence of whistles, warning and signals were given from the locomotive by raising the valve stem on the steam dome by hand, which permitted the steam to escape with a hissing sound, while the conductor had either to run the length of the train or use agreed signs to communicate with the engineer. Advanced practice in communication was illustrated by the engineer running up a flag on the tender when he wished the brakemen to set the brakes. Stopping a train was a matter of physical strength on the part of the trainmen and resulted in discomfort to passengers and in scrambling of freight; the jolting was often "tantamount to a shock scarcely less severe than would be caused on a superior modern train by a collision."

But the peculiar conception early entertained as to the nature of the railway, complicated a difficult matter still further. "It was not the intention of early legislators that railroad companies should have any preferential or exclusive use of the means of transportation upon their tracks. With the exception of the Baltimore and Ohio, few railroad companies of this period were granted charters which did not expressly provide that the road might be used by any person who would comply with necessary rules as to form of wheels, style of cars, and weight of loads. The idea was distinctly in mind that the railroad was to be operated precisely like a turnpike, with gates at intervals along the route for the collection of tolls." Regarded as a public highway upon which all who wished might place at will their own cars for movement by power supplied by themselves, complications were inevitable. Disputes as to right of way often delayed and sometimes blocked traffic and the use of the railways by the general public on a toll basis interfered with any orderly operation by the railway officials themselves. With the proved superiority of the locomotive, however, the railway soon gained exclusive control of its roadway and it was not long before it was recognized that even the right of the individual to furnish cars must be exercised in accordance with appropriate regulations.

PUBLIC OPPOSITION TO THE RAILWAY

But the difficulties faced by the railway pioneer extended far beyond mere problems of plant construction and operation—positive opposition had to be overcome and the support of capital enlisted. By some this new transportation agency was received as an invention of the devil and a herald of social catastrophe, an agency calculated to overturn an ordered state and to erect, in its stead, an organization as menacing as itself for the defiance of all natural laws respecting speed of movement. Illustrating this opposition:

> In Connecticut, we are told, an eloquent divine went about lecturing in opposition to railroads, declaring that their introduction would necessitate the building of a great many insane asylums, as people would be driven mad with terror at the sight of locomotives rushing across the country with nothing to draw them. And the townspeople of Newington in the same state, having learned that a line of railroad was projected through their neighborhood, are said to have presented to the directors a remonstrance which represented that they were a peaceable, orderly people, and begged that their quiet might not be interrupted by steam cars and the influx of strangers.[1]

By considerable numbers the railway was regarded, rightly or wrongly, as inimical to their own economic welfare, and was fought with that bitterness which characterizes only a man's defense of his "bread and butter" interests. Large sums of money had been invested in canal projects by individuals and by government, so active effort was immediately made to protect these undertakings. In New York, the Utica and Schenectady was prohibited in its charter of 1833 from carrying any property other than the baggage of passengers and not until 1844 was it permitted to handle freight—then only during the period of suspension of navigation and upon payment to the state of a sum equal to the canal tolls leviable had the movement been through the Erie Canal. As late as 1848 the General Incorporation

[1] Cleveland and Powell, *Railroad Promotion and Capitalization*, p. 76.

Act required canal tolls of all lines parallel to and within 30 miles of canals and all restrictions were not removed until 1851. In Pennsylvania the charter of the Pennsylvania Railroad required the payment of a tonnage tax of five mills during about nine months of the year, a tax not wholly lifted until 1861, while in New Jersey the Camden and Amboy was forced to agree, as the price of receiving a charter, that it would take over and complete the Raritan Canal project which constituted a rival route!

Turnpike companies and the proprietors of stage-lines also opposed bitterly the introduction of the railway. The Utica and Schenectady was forced to buy up the shares of an established turnpike company at an agreed price, and the granting of railway charters was frequently delayed by such rival interests. Often, too, after the railway was built the stage line waged an almost equal battle against this rather imperfect agency for some time. Allied with those whose financial interests were directly identified with canal, turnpike, and stage-line as investors was a large group whose incidental relationship was such as to make their interests one with the investors. This group included inn-keepers and coach drivers, even the farmers who feared that their market for horses and, in consequence, for hay and grain would be ruined. Such was the general attitude displayed in many quarters that Josiah Quincy declared "the believer in railroads was not only to do the work and pay the bills for the advantage of his short-sighted neighbor, but, as Shakespeare happily phrases it, 'Cringe and sue for leave to do him good.'" Rivalry even among railway promoters delayed development — where no competition for traffic threatened, prospective competition for financial support often caused promoters to block one another's plans.

INADEQUATE SUPPLY OF CAPITAL

The difficulty of securing capital for early railway construction is assignable in part to the scarcity of capital in

the United States, in part to the natural hesitancy of those commanding funds to invest in this new and relatively unproved enterprise. As is peculiarly true of any new country with large areas of undeveloped territory and with great natural resources, the demand for capital greatly exceeded the supply: funds were at a premium. Relief during the early years of development was not to be anticipated from the more highly developed sections of western Europe because at this time the rapid movement toward industrialization at home offered local opportunities for profitable investment. In consequence, early railway construction in the United States had to be financed by local capital. But access to these funds was denied to a degree that the success of the enterprise afterward proved unjustified. Capital is essentially conservative, venturing but timidly into new and relatively untried fields and this is doubly true where an almost endless number of investment opportunities of proven character are offered. Certainly, the first 10 years of railway building and operation were so characterized by experimentation that none but those actively interested, enthusiasts in the "cause," felt that financial success could be immediate and permanent. And that was the only type of success calculated to lure considerable sums of private capital into the field. But, when in addition to a reasonable doubt as to the immediate, even the ultimate, success of this new agency, there existed public apathy in some quarters and active, bitter opposition in others, it is in nowise strange that the possessors of funds doled them out to those interested in railway construction somewhat slowly at first! When a leading paper of Boston declared, in 1827, concerning the proposal of constructing a railway from Boston to the Hudson instead of the canal which had been suggested earlier, that it was "a proposal which everyone knows, who knows the simplest rule of arithmetic, to be impracticable, but at an expense little less than the market value of the whole territory of Massachusetts; and which, if practicable, every person of common sense knows would be as useless as a rail-

road from Boston to the moon," it would have been odd, indeed, had capital rallied to the support of the enterprise within the space of less than a decade or more.

In consequence of the difficulty of securing financial support, many projects were undertaken during this period with wholly inadequate funds. The result of this situation was that numerous roads were but partially completed and this, in turn, was highly conducive to financial disaster. Or, perchance, those who had become financially interested in the project decided to "throw good money after bad" in the hope of retrieving the original sums invested through the completion of the project. Yet, even with the project complete, difficulties were not ended. The lack of adequate working capital and the slender revenues during early years often resulted in a serious situation. In this connection Ringwalt says, "An early employee of the Philadelphia, Germantown, and Norristown, which subsequently became one of the most profitable short lines in the country, reports that he was obliged to buy oil to grease the axles, with his own money. An old engineer on a New England road 'relates how men were sometimes put on the tender with a sawhorse and saw, to cut the wood to make steam for the trip, because there was no supply on hand, and no money to buy any. It is said that an official once gave up his gold watch as security when a train was seized for debt while en route.' " The financial way of the railway builder was truly a hard one during early years: it was more difficult to secure the support of capital during this period for sound projects than it was later, during the speculative era, for the most impossible of promoter's schemes.

RAILWAY CONSTRUCTION AT THE CLOSE OF THE FIRST PERIOD

That construction prior to 1850 reached the proportions which it did stands as splendid testimony to the enthusiasm and perseverance of the railway pioneer. With but little more than a score of miles in operation in 1830, that decade

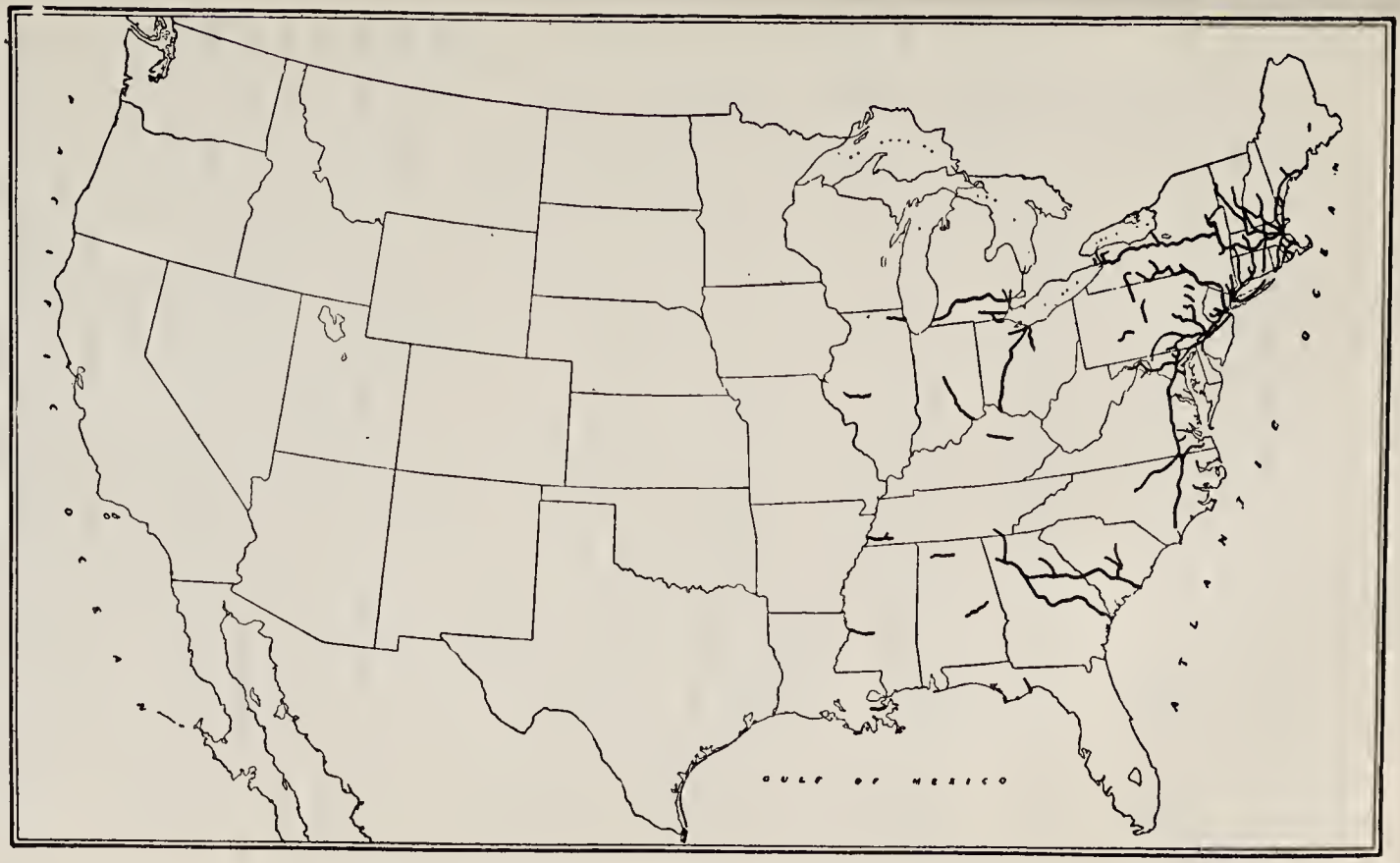

Figure 1: Railways in operation in the United States in 1850

witnessed the completion of 2,265 miles of line and the following decade an additional mileage sufficient to show a total of 7,310 at the close of the 20-year period. The mileage of some of the more important lines at the end of this period, together with the date of their beginning, is indicated in Table 1, below.

TABLE 1

TOTAL MILEAGE CONSTRUCTION OF 18 RAILROADS, 1850

Road	Date Begun	Mileage 1849
Boston and Albany	1834	241
Boston and Maine	1836	74
New York, New Haven and Hartford	1839	123
Old Colony	1845	126
Rutland	1849	119.70
Baltimore and Ohio	1830	182
Cincinnati, Sandusky and Cleveland	1848	169
Michigan Central	1838	218
New York Central and Hudson River	1831	452
New York, Lake Erie and Western	1841	259
Pennsylvania	1832	155
Philadelphia and Reading	1832	122
United New Jersey Railroad and Canal Company	1832	132
Georgia Railroad and Banking Company	1838	215
South Carolina	1830	243
Western of Alabama	1841	111
Wilmington and Weldon	1840	164
Chicago and North Western	1848	43

An interesting fact not shown by the above table is that the South Carolina Railroad Company, with 137 miles in operation at the close of 1833 was for a time the longest railway in the world under a single management. But not alone are mileage facts respecting particular lines of interest —the distribution of total mileage as among the various sections of the country is also significant. Of the total indicated at the close of the fifth decade, the distribution was as shown in Table 2 on the opposite page. When relative areas are taken into consideration, it is evident that construction had progressed at a comparatively rapid rate in the more populous and better developed sections, but had moved for-

TABLE 2

SECTIONAL MILEAGE DISTRIBUTION IN THE UNITED STATES, 1850

Area	Miles
New England States	2,256
Middle-Atlantic States, Ohio, Michigan, and Indiana	3,204
Southern States	1,706
Mid-western States	97
Southwestern States	47

ward very slowly in the agricultural South and the undeveloped West.

Yet practically all important centers of population in the United States had been linked by railways at the close of this period. In the South, Charleston and Savannah were able to reach westward to Chattanooga, via Atlanta, while Wilmington was connected, through Richmond and Washington, with Baltimore. Baltimore, in turn, had access to western Maryland and was joined with Wilmington, Delaware, and Philadelphia. Philadelphia enjoyed rail connections with both Pittsburgh and New York. New York was linked with Albany and Buffalo, also with all important centers in southern New England, including Boston, and Boston had direct access to Albany, also to Portland, Concord, Burlington, and other cities of importance in New England. In the West, Cleveland and Cincinnati were joined and Detroit had connections with Lake Michigan. In many cases, adjacent points were connected by the line of a single corporate organization, but more often, and this was especially true of more distant centers, connection lay over the lines of several carriers. The early lines were typically local in character, largely because of the need of arousing local interest to make the project possible.

FORCES BEHIND RAILWAY BUILDING

Back of railway construction during this period there lay, roughly, four impelling motives. Of these perhaps the

most significant was the desire of important market centers on the Atlantic coast to participate upon a favorable basis in the business of that great area beyond the Appalachians. To the rivalry among Boston, New York, Philadelphia, Baltimore, and Charleston, was due the early construction of the Boston and Albany, the lines westward from New York to Lake Erie, the Pennsylvania, the Baltimore and Ohio, and the South Carolina, each of these projects enjoying primary support from those who hoped to profit in a commercial way from the resulting trade. Similar in its general nature was a second motive, that of building from market centers into surrounding territory that the tributary area might be extended. This was the expected consequence of the construction of that multitude of short lines which so characterized the early years of development. As a supplementary motive, if it might be so termed, to the two already mentioned, there was the intense desire of isolated sections to secure rail connections with market centers and more highly developed territories, to the end of speeding the economic development of the newer section. It was because of this desire that, throughout the entire history of railway construction in the United States, it has been relatively easy to enlist local capital under the banners of pioneer enterprises into a district. A fourth factor, which also operated in the promotion of railway enterprise during this period, was the desire of the promoter to reap a speculative harvest through his association with the promotion and construction of lines. Although not coming into full flower until a later time, the influence of this wily citizen was clearly apparent even before the railway had emerged from the experimental stage.

SUMMARY

To summarize, it may be said that this first period in railway development was characterized outstandingly by experimentation, with heavy resultant losses compensated by rapid technical progress. It was also an era of short-line

construction, since the function of the railway was early held to be that of supplementing natural and artificial waterways and of opening up areas in which waterway construction was not economically feasible. Responsible in part for short-line building, too, were the lack of capital and the failure of early leaders to visualize the railway system as we know it today. A third feature of this period was the comparative absence of construction in all but the northeastern and more populous sections of the United States. It was here that the railway gave greatest promise of success as a business enterprise and here it was, likewise, that capital was to be found for construction. Finally, though complete victory by the railway over canal and turnpike did not come until later, the performance of the newer agency was such, and its future promised so well, that a definite check was given both types of rival enterprise after the panic of 1837. The infant was proving itself both lusty and aggressive.

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V

THE ACCEPTANCE OF THE RAILWAY

Duration of second period of growth. Important factors influencing railway development. Extent of railway expansion. Causes of rapid mileage growth. Public aid an important cause. Reasons for public aid. Land grants in aid of railway construction. Usual provisions of land-grant acts. Development of our land-grant policy. A reversal of judgment. Appearance of large railway systems. Public interest and consolidation. Early proposals to establish transcontinental service. The Union Pacific–Central Pacific project. Other Pacific railways. Appearance of competition. Financial aspects of railway construction and operation. Movement toward regulation. Appearance of positive control. Progress toward plant efficiency. Decline in railway charges and its consequence. Extent of the railway net.

With the close of the fifth decade of the nineteenth century terminated the experimental period in American railway history. In 1850 the railway, tried and found adequate, entered the second stage of its development which continued through 1873. Various facts mark the opening of the sixth decade as the beginning of a new era. The discovery of gold in California in 1849 compelled a new interest in the West and gave a tremendous stimulus to business activity. Then, too, the vast territory which the victorious conclusion of the Mexican War added to the United States opened a great area for development. Finally, the initiation in 1850 of the federal land-grant policy, the significance of which will be indicated later in the chapter, further served to separate this from the preceding period.

As 1850 marks the beginning of the second period in the growth of the American railway net, so do the early seventies mark its close. The year 1871 witnessed the enactment of the last of a series of land-grant acts designed to stimulate the building of mileage throughout the undeveloped West and Southwest. Immediately following the Civil War, too, there came a change in public attitude to-

ward the railway, a change partly attributable to resentment against abuses, but more largely, perhaps, to failure to understand the essential nature of the railway business. This reaction found expression in various regulative acts some of which were not passed until 1874, but all of which resulted, nevertheless, from the agitation of an earlier date. But perhaps the fact which marks 1873 in particular as the close of this period is the sharp drop in railway construction immediately following that disastrous year.

IMPORTANT FACTORS IN RAILWAY DEVELOPMENT

Before entering upon a discussion of the outstanding features of this period in railway history, it is desirable to mention certain important factors which modified the course of railway activity. Prior to the panic of 1837, the railway was an unproved agency of which much was hoped but as to the future of which there was no assurance. During the years which followed recovery from the results of financial excesses until the close of this first period such rapid progress was made in the solution of the engineering difficulties that doubt no longer existed as to the ability of the railway to meet the most exacting demands of shippers. During this period, also, increased reliance upon the railway by the shipping public resulted in a tremendously greater volume of traffic, and this, in turn, inspired confidence in the enterprise and justified financial support. Second, the discovery of gold in California, with its resultant effect upon business, quickened railway expansion. This stimulus was both direct and indirect. The addition of large amounts of gold to the circulating medium tended to increase prices which, in turn, augmented business activity. Indirectly it exerted a psychological influence, both at home and abroad, upon the imagination and mind of those interested in business enterprise comparable to that of a powerful stimulant upon the physical organism. Though the upward trend of business was sharply interrupted by the panic of 1857, only

the outbreak of the Civil War prevented rapid recovery and further expansion. During and after the war, however, inflation of such magnitude again appeared that the panic of 1873 seemed necessary to restore normal conditions.

The Civil War also exerted a deep influence upon enterprise and its importance was no less to the railway than to industry and commerce. For a decade preceding its outbreak, the jealousies and antagonisms of North and South limited railway expansion. Furthermore, the four-year war period and the few years immediately following influenced greatly the rapidity of railway development; the energies of both North and South were largely absorbed in the conflict and little capital was available for any but war purposes. Indeed, in the active war zone a considerable destruction of railway property accompanied each change in control. Though the war resulted temporarily in restricted building, the railway ultimately profited. The hostility between the two sections which finally culminated in war had long blocked all efforts to transform the Pacific railway projects into reality. Withdrawal of the representatives of the seceding states from Congress and the consequent protracted control of the machinery of government by the North offered the desired opportunity. Also, the restlessness of the men who returned from the front and their desire to seek fortune in the undeveloped West did much to furnish an economic basis for railway expansion there. Then, too, the active part played by the railway in military campaigns gave clear proof, if such were needed, of its great utility. And, finally, the inadequacy of waterways in meeting war needs, together with the increased use of the railways in certain sections due to war interruptions of water traffic, strengthened the railway greatly.

EXTENT OF RAILWAY EXPANSION

One of the most important as well as most striking characteristics of the development of the American railway net

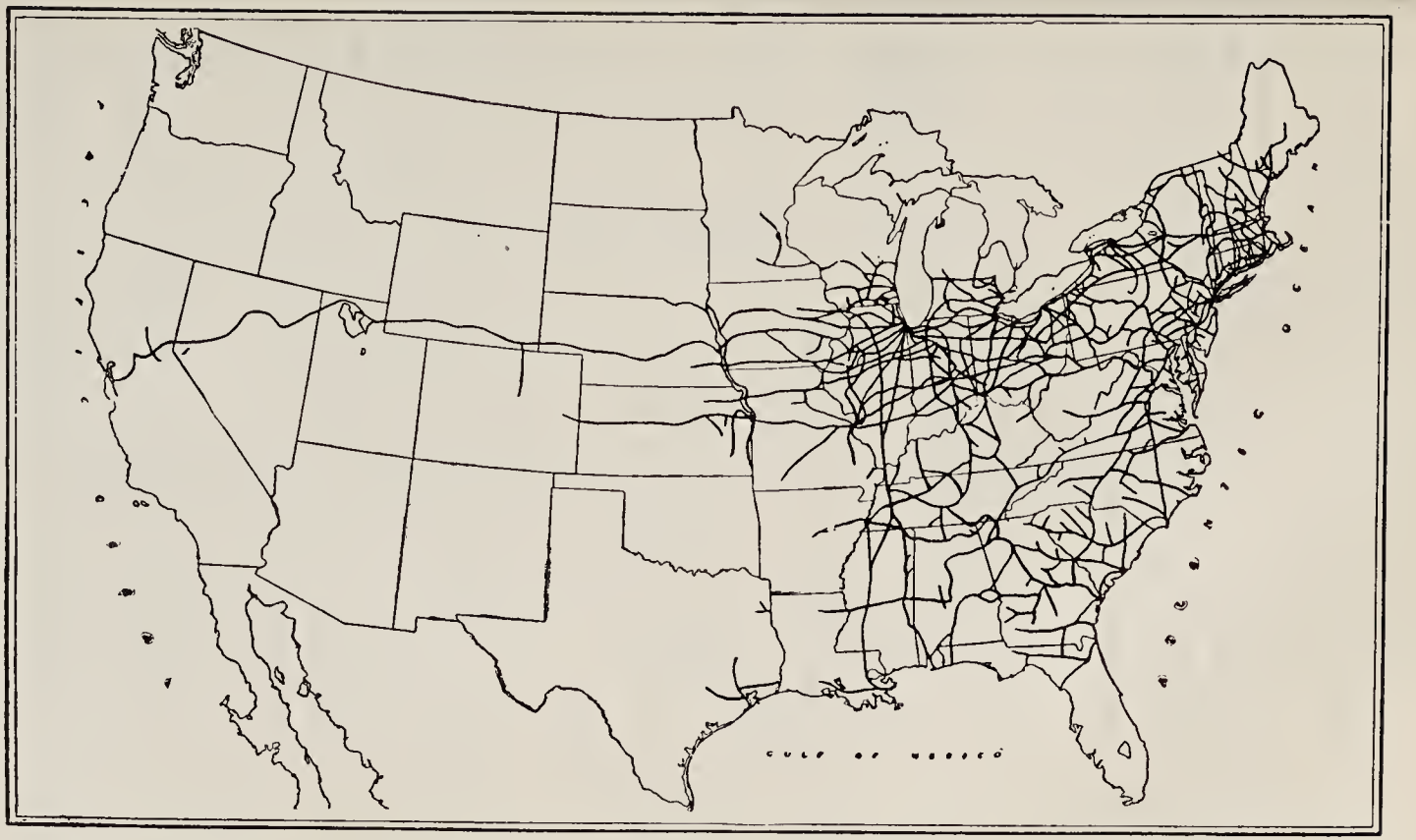

Figure 2: Railways in operation in the United States in 1870

from 1850 to 1873 was the sharp increase in mileage. The number of miles of railway constructed in the United States at the close of 1873 was 68,485, an increase, in less than a quarter of a century and in the face of heavy obstacles, of more than 60,000 miles. The distribution of mileage at the close of this period as among the various sections of the country, an index of the varying force of expansionist tendencies, is indicated in Table 3.

TABLE 3

SECTIONAL DISTRIBUTION OF MILEAGE IN THE UNITED STATES, 1873

Area	Mileage	Increase Over 1849
New England States	5,374	3,118
Middle-Atlantic States, Ohio, Michigan, and Indiana	23,442	20,238
Southern States	12,472	11,036
Mid-western States	17,959	17,862
Louisiana, Arkansas, Indian Territory	636	589
Dakota, Nebraska, Kansas, Texas, and West	8,332	8,332
Total	68,485	61,175

As interesting as the distribution of mileage by sections, is its distribution among the various years of the period. By the close of 1859 mileage had grown from 7,310 to 27,420 but during the following decade total mileage added fell below that of the one preceding with an increase of but 16,091. Construction dropped to 574 miles in 1863 and stood at less than 1,000 miles per year during the years 1862 to 1865 inclusive, while more than half of the total contribution was added during the last few years of the decade. The striking rally from subnormal construction during the war years is indicated by the tremendous expansion in 1869-1873 inclusive, during which about 25,000 miles of line were laid. In 1872 alone almost 7,500 miles were built.

CAUSES OF RAPID MILEAGE GROWTH

Several facts explain this rapid extension of mileage. During the early years of railway growth the lack of capital for such development had been an important restrictive element. The supply of funds in the United States, a new country with unusually rich natural resources awaiting utilization, was inadequate to meet the needs of railway construction even when freely offered. But when uncertainty as to the future of the railway discouraged the investment of even these limited funds, it was inevitable that construction should proceed slowly. By the close of the first period, however, the future of the railway appeared certain and the success of many of the earlier projects had been such as to rouse the interest of investor and speculator alike. During the second period, therefore, railway enterprise enjoyed not only the complete confidence of local capital but gained strong foreign support as well. In speaking of this increased interest Ripley says, "Enthusiasm grew abroad until as little discrimination came to be applied in supporting all kinds of enterprises as had characterized their (European) condemnation 10 years earlier. Until the panic of 1873 European investors bought our railway securities eagerly." Indeed, many important railway properties in this country which date from that period have enjoyed from the beginning the continued interest of foreign capital, among these being the Illinois Central and Chicago and North Western. Railway development proceeded rapidly when supported thus by the possessors of funds both at home and abroad.

It was but natural that the railway situation should appear encouraging, particularly during the immediate post-war years. To the westward lay a broad and fertile area which promised to become the granary of the world. Beyond the prairies lay the mountains which imagination endowed with unparalleled mineral wealth. Into these new areas were pressing thousands upon thousands of restless Ameri-

cans and into them was also flowing a constant stream of thrifty and hard-working European immigrants. The opportunity seemed indeed golden, and sharp struggles ensued in many of the newer sections between groups interested in establishing prior claim to a territory through the early construction of lines. Thousands of miles of railway were built in the Middle West and Southwest during this period to make accessible to market those richer sections which labored under the handicap of distance. By 1873 Michigan, Ohio, Indiana, Wisconsin, Illinois, Iowa, and southern Minnesota were gridironed by the railway beyond the dreams of even the most optimistic in 1850, while farther west the building of the transcontinentals occupied an important place. In the Southwest, also, striking progress had been made, particularly in eastern and southern Texas.

PUBLIC AID AN IMPORTANT CAUSE

The rapid increase in mileage which featured not only this period but also the one following, resulted primarily, however, from the extensive public aid enjoyed by the railways during those years. Though such assistance was not unknown prior to 1850 it was during the 40 years following that date that it played a peculiarly important part in railway development. America, with vast areas and tremendous undeveloped resources which could be served efficiently during this period only by the railway, found itself facing that always difficult problem of securing an extension of mileage into new sections which were unable, as yet, to furnish adequate economic support for such enterprises. The essentially individualistic character of early economic life in America, as well as the influence exerted by a *laissez-faire* philosophy, caused government construction and operation of new lines to receive but scant consideration. So positive was the sentiment against the entrance of government into the railway field as an active participant that a second possible policy, that of government construction followed

by transferal of title to private corporations for operation upon such terms as were reasonable in view of the immediate prospects of the property, was given equally scant consideration. But it was obvious that pioneer mileage would increase all too slowly if compelled to rely for support solely upon private funds in search of investment opportunity. A third method of securing early and rapid expansion of the railway net remained, namely, that of private construction and operation with such aid toward building from private and governmental sources as the situation demanded. This plan long enjoyed enthusiastic and wide-spread support.

The reasons underlying this generous aid to railway construction which so effectively assisted in the extension of our mileage were several. Individuals gave freely in effort and in money because of an expected pecuniary gain. Indeed, the enthusiasm of those along a projected pioneer line was often so great that farms were mortgaged and the mortgages either exchanged for stock which all too often proved worthless or, in extreme cases, donated to aid in building the property. This individual interest in railway construction was primarily economic in character; its major purpose was to obtain increased prices for grain, live stock, and other farm products or an increased volume of trade. The desire of frontier communities which hungered for intellectual and social contact with other sections and which regarded the railway as an instrument capable of greatly increasing those contacts, served as a further justification, however, for heavy individual sacrifice when sacrifice was essential to secure immediate construction.

Aside from self-interest, which underlay largely individual and local public aid, county, township, and municipal, there was a larger governmental purpose which prompted state and federal assistance to the railways. Great areas of vacant but fertile land and exceptional mineral and timber resources awaited, for their utilization, only the coming of the railway. To further the prosperity and well-being of the state or of the nation as a whole, appeared a sound

justification of grants of aid; to populate that vast expanse of territory, ranged by Indian and by bison, with tens of thousands of industrious citizens seemed indeed a worthy goal. Then, too, back of state and federal aid lay a political purpose: constant friction with the Indians necessitated adequate and rapid transportation of troops and, further, it could be said, truly, of the country as a whole, even of the larger states, that unity could not be developed except as contacts were increased by improved transportation facilities. It is interesting to note, also, that in the case of federal aid, particularly with respect to grants of land, subventions were justified upon the ground of pecuniary gain to the government. It was freely urged by many that the alternate sections which, under the terms of various grants, remained to the government would be of greater value to it than the entire area without the railway. In the words of Henry Clay, speaking in support of the Illinois grant, such a policy was destined to "bring millions of acres of land immediately into the market which will otherwise remain for years and years entirely unsalable."

As indicated previously, public aid prior to 1850 had played a part in the development of the railway net. Such aid came largely from the states themselves and took in the main two forms, of which the more important was the loan. Massachusetts early extended its credit to aid railway construction, as did New York. Virginia followed a definite policy of subscribing for two-fifths of the stock of Virginia projects when the remaining three-fifths of the sum necessary to complete construction had been secured. Pennsylvania and Georgia, as well as Indiana and Michigan in the West, actively embarked upon a program of railway construction. These grants were of comparatively little importance, however; especially so since construction during early years was confined largely to the more populous and developed portions of the country in which the need of aid was slight. Furthermore, the venture of certain states into the field of construction and operation proved so thoroughly

unsatisfactory that the few properties held were soon sold to private corporations and thought of further expansion by that method abandoned. Both types of assistance, in fact, resulted in loss to the states involved. One interesting feature of the charters of many of these early state-aided properties was that, after a lapse of a fixed number of years, the state should have the right to take over the property upon fairly compensating stockholders and creditors interested therein. For those who know American railway history it is needless to say that this option has in no instance been exercised.

LAND GRANTS IN AID OF RAILWAY CONSTRUCTION

In the years following 1850 railway building was pushed largely in the newer and less developed sections of the United States. This fact, together with a growing enthusiasm for railway construction, led to demands for aid of a far more extended character than during preceding years. Financial aid by the states continued, particularly in the South, and large sums were received from the various local governmental units also. The outstanding feature of public aid, however, and that which was peculiarly characteristic of the period 1850-1873 was the federal land-grant policy. This was initiated in 1850 by a grant to aid in the building of the Illinois Central and closed in 1871 with a large grant in behalf of the Texas and Pacific. During this time it was, too, that state grants of land to aid in railway construction were made throughout the western area where alone title to public lands remained in the individual state.

That federal land grants had not been made prior to 1850 is explained, perhaps, by the doubt of Congress as to its constitutional power to take such action rather than by its unwillingness to assist. An increasing readiness to construe the Constitution broadly in such matters, coupled with political strategy of high order on the part of Stephen A. Douglas, made possible the Illinois Central grant, but, to

minimize legal difficulties, title to the lands which were to assist in building this line was transferred to the State of Illinois with the understanding that it be regranted by the state to the railway. With the Illinois Central grant was passed also an act extending aid to the Mobile and Ohio project which was to form another link in the chain connecting Chicago with the Gulf. Later, under a more liberal construction of the Constitution, it was held that grants might be made directly to the corporation instead of through the states. In consequence, this was done after 1862 for the building of mileage through territories and, beginning with 1866, the same policy was followed with respect to construction through the various states.

In general, the Illinois Central grant was the model for all later acts. Under these acts the railway received a strip of land 200 feet wide for right-of-way purposes through all public lands traversed and received alternate sections, the even numbered, of land on each side of the line for a distance which varied widely in different grants, with the right of substitution of other public lands within a certain distance of the line for such areas as had previously passed from the hands of the government. In certain of the grants the land retained by the government was not to be sold at less than a stipulated figure, perhaps $2.50 an acre. These acts invariably fixed a time limit within which the work must be finished and stated the conditions which should govern the transfer of title to the land, the usual provision here being that, upon the completion of each 20 miles of line, title to the lands along that stretch subject to the grant should pass to the railway. One other provision, and one quite generally overlooked but which has proved to be no small burden to the railways, declares that over "land-grant" roads property and persons moving at the cost of the government should be transported at reduced rates, that reduction varying among the different roads from 15% of the regular tariff to free movement. Indeed, by the railways it is claimed that this provision has resulted through

the years in actual gain to the government despite the apparent liberality of the grants in aid of construction.

DEVELOPMENT OF OUR LAND-GRANT POLICY

The various federal grants made directly or indirectly in aid of railway construction differed most with respect to the amount of land to be transferred per mile of line built. As might be expected, the first grant, to an eastern project, gave a minimum amount, alternate sections for a distance of 6 miles on each side of the railway, but, as additional grants were made, this distance was increased to a maximum of 40 miles through territories for some of the western undertakings. This growing generosity on the part of Congress is to be explained upon at least three grounds. As the policy of granting public land to aid in railway construction became more definitely accepted and established, fewer questions were raised concerning the amount of land offered. Furthermore, and perhaps of greater importance, it is obvious that later grants involved areas of little value as compared with the prairie lands of Illinois. And, finally, these later grants were made in behalf of a much more difficult type of construction, the building of the Pacific lines.

Although accurate figures showing the exact extent of grants made in aid of railway construction are difficult to secure, it appears that something more than 215,000,000 [1] acres were made available to the railways during this period by state and federal acts; Texas, of the states, being the only primary contributor of importance. The amount of land made available in particular years during the land-grant period, 1850-1871, varied widely. The first grants of considerable magnitude were made in 1856, when more than 12,000,000 acres were placed at the disposal of the railways, but the acreage made available in 1862 totaled almost 15,500,000. The banner years, however, were those

[1] Of this total, title passed to only about 155,000,000 acres. The remainder was returned to the public domain because of failure in certain instances to comply with the terms of the various acts.

of 1864 and 1866, when approximately 51,000,000 and 65,000,000 acres, respectively, were offered as an incentive to early construction. These large areas went almost wholly to aid the various Pacific projects as did the last grants of more than 24,000,000 acres in 1871.

The refusal of Congress, after 1871, to extend further aid to the railways through grants of public lands was due to several causes. Throughout the entire land-grant period there had been strong opposition to the policy, particularly in the eastern and more populous areas, but noticeable even in the West. Various factors combined to swell this protesting minority into a controlling majority. It was felt that adequate provision had been made for railway mileage throughout the West by the grants of the sixties and that further aid would represent unquestionably an extravagant use of public lands. Then, too, the position of those who had long championed the husbanding of our land resources for homestead use was greatly strengthened by the tremendous demand for free land which arose with the westward movement of population after the Civil War. A third factor weighing against the extension of further aid was that growing hostility toward the railways which was evidenced so clearly and so positively by the so-called Granger legislation of the early seventies.

THE APPEARANCE OF LARGE RAILWAY SYSTEMS

A second important feature of American railway development between 1850 and 1873 was the linear consolidation of short lines and the construction of through lines. As a result of this movement there appeared, during these years, the first of the railway systems which are characteristic of our mileage today. Even in the forties it became evident that the railway was destined to serve in a more significant way than merely to connect water routes or to tap nearlying areas which were inaccessible by water. As intersectional exchange developed, the serious inconvenience entailed

by the shipment of goods, even the movement of persons, over successive short lines appeared. To lessen this handicap to the speedy handling of goods, the fast freight line was established and, as a long step in the same direction, there developed a demand for, and a definite movement toward the adoption of, a standard gage. The coordination and eventual consolidation of many short connecting lines was given further impetus by the dawn of the idea of great railway systems in the minds of such leaders as Vanderbilt and those directing the Pennsylvania and the Baltimore and Ohio. Another reason for the consolidation of short lines, and one of great force, was the construction of through lines such as the Erie and the Baltimore and Ohio westward. To compete successfully with such roads it was absolutely essential that all connecting short lines should operate as a unit. Then, too, the enforced cooperation of railways for military purposes during the period of the Civil War emphasized the advantages of unified operation. Finally, during this period certain legal obstacles to the unification of operations disappeared; Pennsylvania, for example, repealed all legislation designed to compel a transfer from one road to another at or near Erie, of all freight moving from west to east through that portion of the state, thus furthering railway consolidation and the rapid handling of traffic.

The extent to which the consolidation of connecting lines was carried during this period may perhaps be best indicated by example. The New York Central Railroad, operating between New York and Buffalo by way of Albany, represented a consolidation of no less than 12 companies, while Chicago was reached by the absorption of western lines. The Pennsylvania Railroad from Philadelphia to Pittsburgh was the product of a series of consolidations also; the modern property includes mileage formerly owned by more than 200 separate corporations. Even in the West consolidation was an important factor in the creation of large railway systems: the Chicago and Rock Island, the Chicago and North Western, the Chicago, Burlington, and Quincy and

the Milwaukee and St. Paul all grew rapidly in mileage by this method as well as by construction.

PUBLIC INTEREST AND CONSOLIDATION

That public interest was promoted by consolidation is undoubted. It served to make through movements both cheaper and speedier and aided shippers by making recovery for losses or damages suffered more certain. In speaking before the Windom Committee in 1873, Mr. Worcester, secretary of the New York Central, said in part, "All the permanent and progressive reduction of rates that I have spoken of, and the whole practical efficiency of the entire railroad system, have been due entirely to consolidation or to the concentration of lines originally distinct." Indeed, the riper judgment of students of the railway problem with respect to consolidation might be summed up in the words of the Massachusetts Railroad Commissioners in their 1873 report in which they commented upon British experience with consolidation: "The evidence seems almost conclusive that positive benefit rather than injury has there resulted from amalgamation so far as it has gone. Not only have the evils anticipated not resulted, but it would seem that the public has invariably been better and more economically served by the consolidated than by the independent companies. . . . The time and attention of the officers are not mainly absorbed in questions of corporate hostility and the money of the companies is wasted in a somewhat less degree in warfare with each other. There is, in fact, far less friction in the work of transportation and far more system."

Despite the manifest advantages flowing from consolidation there were certain aspects of it which gave rise to strong public opposition. In part this opposition was mistaken as at Erie, Pennsylvania, where those dependent upon the transfer of goods and persons from one road to another rioted and destroyed property in their efforts to block the development of through movement. However, opposition

was better grounded in its protest against the greatly increased powers which combined properties possessed over community life as compared with the individual component lines. Consolidation seemed to threaten the continuance of active competition also, and this, during a period throughout which such implicit reliance was placed in competition as a protector of public weal, might well have been expected to arouse intense antagonism. A further cause for complaint against the policy of consolidation appeared in the increased capitalization which so frequently accompanied the combination of properties. Seldom, indeed, was it that a unified property did not show a capitalization distinctly in excess of the previous total of its constituent units, and this was especially true during the intense, speculative activity of the closing years of this period. It is probable that popular opposition to the railway, which culminated in the Granger laws, resulted in no small measure from wide-spread hostility to the consolidation of properties.

EARLY PROPOSALS TO ESTABLISH TRANSCONTINENTAL SERVICE

A third important feature of the period which closed with 1873 was the establishment of transcontinental service over the Union Pacific–Central Pacific line. The first proposal to establish service between the settled East and the Pacific Coast was made anonymously in 1819—for this purpose it was suggested that the Bactrian camel be used as a means of communication between water routes! In the next year, and almost a decade before the Rain Hill trial, Robert Mills, of Baltimore, urged the construction of a portage railway for such distance as might be necessary to connect the upper reaches of the Missouri with the Columbia. During the next 20 years numerous plans were offered. Perhaps the first to suggest the construction of a steam railway was the writer of an editorial in *The Emigrant* of Ann Arbor in 1832, who introduced his proposal with an apology for sug-

gesting a plan which might appear exceedingly visionary. The first advocate of a transcontinental, or Pacific, railroad to gain recognition, however, was Asa Whitney. In 1844 he offered to build a railroad from Lake Michigan to the Pacific Northwest, the cost of this line to be defrayed by the sale of lands from a grant which he proposed Congress should give him at a nominal price along the entire route. Throughout the period during which Whitney's plan received consideration, other proposals also took more or less definite form, but without exception these possessed one important feature, that of governmental participation, in common. Most of the projects called for private construction and operation with government aid through land grants or loans, though others urged, both because of the expense involved and because of the social and political importance of such a line, that the government itself construct and operate the property.

After the territorial adjustment at the close of the Mexican War there was added to the confusion which resulted from the proposal of many widely divergent methods of financing construction, the problem of selecting a route. Prior to that time but a single route was available, one which would reach the Pacific Coast near the mouth of the Columbia or at some point on Puget Sound. Following the Mexican Cession, however, additional routes were opened which may be grouped under the heads of Central and Southern. By 1853 interest in the development of transcontinental service had become so great that Congress authorized an exploration of the possible routes with a view of determining the most feasible. The report was made in 1865 but, in the intervening years, political changes occurred which made action possible without the aid of support such as an unbiased finding might give. Rivalry between North and South had appeared early in the struggle over the selection of the route of the first Pacific railroad, and it was not until after the southern representatives had withdrawn from Congress that the deadlock was broken and it became possible

to pass any measure making definite provision for a line to link the East and the Far West.

THE UNION PACIFIC–CENTRAL PACIFIC PROJECT

In 1862 a bill providing for the building of the Union Pacific–Central Pacific line became a law. No work was done upon the project, however, until 1864 when construction eastward was started by the Central Pacific, the Union Pacific beginning its movement westward the following year. Because this project was the first to join the East with the Pacific Coast and probably the most difficult to carry through, certain details with respect to it will be noted. Council Bluffs was made the eastern terminus of the line, which assured a satisfactory bridging of the Missouri River, while the Central Pacific built eastward from Sacramento, which had water connections with San Francisco. The two major difficulties faced by those in charge of the Union Pacific, aside from finances, which were equally troublesome to both corporations, were the crossing of the Continental Divide and the problems arising out of railway construction through an area over which warlike and hostile Indian tribes roamed almost at will. The discovery of a satisfactory pass proved a temporary stumbling-block, and it is stated that the ultimate discovery of the South Pass was made by General Dodge, in charge of the undertaking, by mere chance during a running fight with Indians. Although no record remains of the number of lives lost through Indian raids, it is certain that hundreds of men paid the supreme price before the property was completed.

In driving the Central Pacific to the Great Salt Lake, Chief Engineer Judah found his first and perhaps most difficult problem to be that of discovering a pass through the Sierra Nevadas, which formed an even more serious obstacle to railway construction than the Continental Divide. It is said that Judah located his route by chance also. Noting the flight of an eagle which disappeared into what he had

thought to be a solid wall of granite, he investigated the area and found that wall cleft by the only feasible pass for a direct line from Sacramento to the Great Plateau. Beside surmounting the Nevada range, the western line faced two additional problems of great difficulty. Every pound of iron and steel used in the construction of the Central Pacific, and every piece of equipment employed in its service, had to come from the East and most of it was moved around Cape Horn in clipper ships. Yet even with the material at hand, the management was faced with the seemingly insurmountable difficulty of securing labor. This essential factor was scarce even in the newer sections of the East but upon the Pacific Coast it was non-existent. It was obvious, therefore, that workers must be imported in great numbers. The problem was solved by bringing shipload after shipload of Chinese from the Orient to perform the major part of the work incident to construction. Indeed, had it not been for the service of the Chinese coolie, railway construction in the West would have been long delayed in time and the cost of building would have been greatly increased; a debt which the West might have repaid partially during later years by more considerate treatment of the "heathen Chinee."

In addition to the two men already named who participated actively in planning and in building this first transcontinental railway, others deserve mention. Judah, by great effort, interested in the western section a group of Sacramento merchants, of whom Collis P. Huntington and Leland Stanford later became national figures because of their railway and political activities, and it was by these men that the project was pushed to completion after the early death of Judah himself. Prominent among those interested in the Union Pacific were the Ames brothers, Durant, and Dillon, all of whom devoted great energy to the completion of the project, but all of whom were besmirched through their relationship with the Crédit Mobilier which played so active a part in financing the eastern portion

of this pioneer Pacific project. But, however much these men and their lieutenants might have exerted themselves, the fact remains that except for unusual government assistance this first transcontinental line must have remained a paper railway for many years: aid was given it not only in the form of lands, but also of loans of government credit to the approximate amount of $55,000,000.

Upon the completion of the project an impressive ceremony was held. As the last tie, California laurel, highly polished and bearing an appropriately inscribed silver plate, was slipped into position, four spikes, two of silver and two of gold, were passed to Governor Stanford and Durant who put them in place. When the silver hammer fell, a signal indicating the completion of the line was flashed over the wires, and throughout the entire country was celebrated the establishment of railway communication between the East and the West.

OTHER PACIFIC RAILWAYS

Although a railway over the central route was the only one of those undertaken which was completed during this second period, others of importance were planned and, in slight measure, begun. The Northern Pacific, for which plans were made as early as 1864, began construction in 1870 and at the close of 1873 had built 530 miles of line. Ground was broken for the Atchison, Topeka and Santa Fe a year earlier and at the end of the period it was operating almost 450 miles; the Texas and Pacific, actually begun in 1864, had completed at the close of this period 283 miles of line to the westward. The Southern Pacific, originally intended to join the Texas and Pacific at the Colorado River, had built 102 miles of line by 1869, to which were added from 1871 to 1873 an additional 172 miles. During the following years of railroad development all of the projects mentioned, together with others, were pushed forward to completion, thus making available to the public prior to

1893 numerous routes from the Middle West to the Pacific Coast.

THE APPEARANCE OF COMPETITION

The conditions surrounding early construction and operation were such as to prevent the appearance of active railway competition throughout the first period of development. During this second period, however, competition developed rapidly and became a disturbing factor of serious proportions by the late sixties. The reasons for this change were several. In the first place, the consolidation of connecting lines and the construction of through lines, mentioned earlier, brought properties into direct conflict in their struggle for business. This was true not only of the business of particular centers, but also of the business of large areas; with the completion of the New York Central and the Erie to points on Lake Erie, and the Pennsylvania and the Baltimore and Ohio to points on the Ohio River, sharp competition developed for control of the heavy tonnage moving into and out of the western territory. This type of competition was fostered by keen rivalry between important market centers such as Baltimore, Philadelphia, New York, and Boston in the East, St. Louis and Chicago in the Middle West. Another factor that stimulated railway rivalry during this period was the construction of mileage greatly in excess of the economic needs of the territory served. Yet it is only fair to add that, even though this situation had not existed, the very nature of the railway business would have encouraged outbreaks of rate-cutting such as occurred during the latter part of this period and the early years of the one succeeding. Peculiarly subject to the operation of the law of increasing returns, even a group of uniformly prosperous carriers become involved finally in a struggle to obtain additional traffic except as some method of cooperation serves to check such action.

Although rate fluctuations had been experienced earlier, the full force of competition did not appear until about

1868, but from that time forward cut-throat, rather than normal, competition characterized the railway field until effective methods of cooperation were developed. Perhaps the intensity of the struggle was nowhere greater than in that portion of the country now known as Trunk Line territory. As illustrative of the wide and rapid movement in rates the following data serve excellently:

TABLE 4

NEW YORK–CHICAGO RATES, FIRST CLASS, IN CENTS PER HUNDREDWEIGHT

Date	Rate	Date	Rate
1869		1869	
February 4	188	October 13	125
February 24	40	November 1	140
March 15	160	November 29	150
July 1	188	1870	
July 31	70	June 13	112
August 4	40	July 12	80
August 5	30	July 25	65
August 7	25	July 28	50
August 30	43	August 22	100
September 30	30	September 8	125
October 4	50	November 28	160
October 9	75	December 26	180

This fluctuation continued in 1871, when rates dropped as low as $0.30 per hundredweight first class, and rose to $1.25; also, in 1872 and 1873, when maximum and minimum figures were $0.75 and $0.27, $1.25 and $1 respectively. That the struggle for the handling of particular commodities was equally keen, perhaps keener, is shown by the brief quotation of a rate of $1 per car for live stock from Buffalo to New York City by the two carriers serving those points. Passenger business was also affected by the competitive activities of rival carriers, but ridiculously low rates did not appear prominently in this field until the following period, except for a short time during the late fifties.

EFFORTS TO CONTROL COMPETITION

So disturbing and so destructive did competition become that definite and positive efforts to bring it under control

were inevitable. As early as 1854 agreements among the New York Central, Erie, Pennsylvania, and Baltimore and Ohio were reached which led President J. E. Thomson of the Pennsylvania to say in his annual report covering that year, "With a view of agreeing upon general principles which should govern railroad companies in competing for the same trade, and preventing *ruinous competition,* a free interchange of opinions took place during the past year between the officers of the four leading east-and-west lines, and also with those of their western connections. The influence of these conferences, it is believed, will be felt in reducing expenses, correcting abuses, and adding to the net revenue of the several companies, while the public will be served with equal efficiency and greater safety." The failure of this agreement to hold competition in leash led to a second attempt in 1858, when the presidents of each of the four trunk lines named above became party to an agreement designed, to quote President Thomson again, "for the purpose of agreeing upon remunerative rates, abolishing injudicious practices, and effecting a harmony of purpose conducive to the mutual advantage of the railway and the public." This agreement covered not merely passenger business, but also certain classes of freight traffic, especially eastbound live stock movements and westbound merchandise tonnage. It provided, further, for a referee with authority to render a binding decision should those party to the agreement be unable to arrange a mutually satisfactory settlement of controversies arising thereunder.

Efforts on the part of carriers operating in competitive areas during this period to maintain peace through agreement upon rates were both widespread and open. Failing to accomplish this purpose through the simple agreement, Commodore Vanderbilt, of the New York Central, sought to perfect the machinery at the Saratoga Conference, called after the disastrous rate wars of the years from 1868 to 1873, by giving to a central board the power to fix rates and prescribe rules. That this plan roused intense public oppo-

sition because of its apparent monopolistic character is but natural; that certain of the competing carriers rejected it is surprising, however, until it is realized that the rejectors were weaker lines striving to secure a larger proportion of the competitive tonnage, a goal which could be attained only through competitive activity, with financial shipwreck as the price of failure. Experience showed clearly that the simple agreement, as an agency of control, gave no assurance to competing railways of the curtailment of destructive warfare. In the hope of gaining increased assurance of financial stability for all properties, the pool was substituted for the less formal arrangement. This form of agreement was early employed in New England but its first important application was to all competitive traffic handled by the railways between Omaha and Chicago. Since the pool is more characteristic of the succeeding period, however, it will be described at length in the next chapter.

FINANCIAL ASPECTS OF CONSTRUCTION AND OPERATION

During this period the financial aspects of railway construction and operation became significant for the first time. Although building before 1850 was comparatively active, railway mileage had absorbed, prior to that year, an amount of capital somewhat less than $300,000,000. During the ensuing decade, however, expansion was rapid, with the result that at its close the investment figure was slightly in excess of $1,150,000,000, a tremendously large sum, both absolutely and relatively, to be devoted to a single type of enterprise in America at that time. Yet, however large looms railway investment prior to 1860, the astounding fact appears in the approximate doubling of that investment during the decade following. Despite the Civil War, railway projects had appealed so strongly to domestic and foreign capital that in 1870 railway properties represented an actual outlay in excess of $2,200,000,000, and this figure must have been increased to little less than $3,000,000,000 as the result

of rapid construction in the closing years of the period. That heavy investment in railway enterprises, many of which seemed to lack any immediate economic justification, should have marked influence upon the financial conditions of the country was inevitable. This influence was evidenced most strikingly in the panics of the period, particularly those of 1857 and 1873, though the minor "flurry" of 1854 first indicated a causal connection to those interested.

In an effort to explain the financial difficulties faced in 1854 the Pennsylvania Railroad report of the following year suggested various factors—hostilities in eastern Europe with a resultant tightening up of investment funds abroad, excessive credit expansion, fraudulent activities on the part of railway management, and injudicious construction. In closing, this statement appears: "Although to some extent sufferers from the difficulties attending this condition of the money market, we cannot but feel satisfied that the general good will, in the end, be advanced by the timely check placed upon many of the schemes of improvement that had been commenced and were maturing throughout the West, as well as in our own state. It is hoped that the lessons of the past will be a warning to capitalists to use greater discrimination in the future in the investment of the means with which fortune has favored them." Late in 1854, President Pierce, in his annual message to Congress, seriously questioned the wisdom of stimulating railway construction through grants of public lands, saying that "if constructed by private capital, the stimulant and the check go together, and furnish a salutary restraint against speculative schemes and extravagance." Commenting upon the situation in 1857 the *American Engineer* of August 29, 1857, declared: "There are one thousand million dollars invested in railroads in the United States, and where it has been believed that this property could pay $70,000,000 yearly, it does not pay $40,000,000—a yearly deficit of more than $30,000,000." This last statement indicates that experience early brought

out the essential nature of that explanation of crises now rather generally known as the overcapitalization theory.

However, if railway construction and finance were closely related to financial collapse in the fifties, these two factors were inextricably interwoven in the severe crash of September, 1873, a crash which weighed heavily not only upon railways but also upon industry, agriculture, and commerce, for some years to follow. During the years preceding the panic of 1873, railway building had gone forward by leaps and bounds. Much of the new mileage was situated in undeveloped areas and owed its existence to generous public aid, particularly to grants of land. Early in the year of the final collapse, the results of overreaching were in evidence—a decline of prices, a "superabundance of railway securities." The first definite blow to public confidence was struck by the collapse of a small eastern property, and this was immediately followed by a second failure which left the financial structure a mass of ruins. This second was the failure of Jay Cooke and Company and the collapse of closely affiliated financial houses. Fundamentally responsible for the bankruptcy of this firm of international repute was an agreement under the terms of which the Northern Pacific project was underwritten. By this agreement the banking house contracted to dispose of a sufficient amount of bonds from time to time to meet construction costs, a task beyond its power both because of the general overextension of railway mileage and credit and the dubious prospect of this project in particular. The general collapse of 1873 forced the thorough reorganization of weaker railway properties, seriously embarrassed even the strongest, and reduced construction to a minimum for several years. Time was needed to enable an economic substructure to be inserted beneath many of the projects begun or completed during the latter part of this period, railways which were lured into the field long in advance of public need by the attractive bait of public aid and the glowing promises of glib-tongued promoter.

MOVEMENT TOWARD REGULATION

Another distinguishing and interesting feature of the second period in the development of our railway net was the demand for carrier regulation which crystallized in the so-called Granger laws. Throughout the early years of railway construction, when projects were local in purpose and locally financed, there was comparatively little opportunity for the development of friction between railway and public. Indeed, even in the West, where positive action aimed at railway control was first advocated, the demand did not arise until after the areas from which protest arose were supplied with a reasonably liberal mileage. In fact, insistence upon regulation at this time is assignable, directly and primarily, to certain abuses and evils, real and imagined, which appeared incident to the construction and operation of these newer properties. Possible at many points and needful at all in the West was a higher level of rates than prevailed in the East. This was due, in part, to the monopolistic position which the railway often occupied; in part to the existence of but light traffic and that generally in relatively low-grade commodities. Added to this higher rate level was discrimination, both as among persons and places but more conspicuously the latter—and it was this place discrimination which peculiarly inflamed those located at non-competitive points. Actual sacrifices in aid of railway building had been made more often by community and individuals alike at such points than at the favored competitive points. To the locality that had bonded itself heavily to aid construction, to the farmer who had contributed in money and time, perhaps mortgaged his farm to secure the contribution asked, nothing could arouse greater ill-feeling than preference shown to points where such sacrifices had not been made. To argue the economic necessities of competition was worse than useless. When to high rates and discrimination was joined a railway policy well expressed by the words credited to Commodore Van-

derbilt, "The public be damned," it is not strange that the independent and aggressive pioneer did a bit of damning himself! No more unpromising ground for the arrogance of railway management existed than the West, where such a policy was substituted all too frequently for diplomacy.

Public opinion at this time was affected unfavorably, also, by the numerous financial scandals incident to railway construction and control. The construction company, of which the Crédit Mobilier of the Union Pacific was a current and odorous example, was employed generally and so utilized by "insiders" as to rouse a strongly adverse public criticism. Sharp, even fraudulent financial practices, so well illustrated by the manipulation of Erie securities by that "inside" group, the Gould-Drew-Fisk interests, which resulted in burdening properties with excessive capitalization upon which it was hoped that the public might be mulcted for a return, further estranged public confidence and support. Then, too, financial reorganization and readjustment frequently resulted in "squeezing out" smaller interests, often the general public, to the advantage of controlling groups, a practice which stirred deeply those injured. Yet, before this background of manipulation and fraud, in the face of heavy financial losses suffered in the West through railway investments and through adverse general conditions, the officials of these corporations, owned largely in the East and in Europe, appeared in hamlet and city alike, with silk hat, frock coat, white gloves, and patent boots; they typified prosperity to the hard-pressed farmer whose home was often jeopardized during many of the hard years. Here is another explanation of Granger Legislation—the apparent prosperity of foreign corporations which continued, in the face of local poverty, rates adjusted to a higher level of prices for farm products.

THE APPEARANCE OF POSITIVE CONTROL

This change of attitude toward the railway in the years following the war resulted in action by certain states and

by Congress. State action took positive form in statutes designed to regulate, directly or through commissions, the essential activities of the railways in relation to the shipper. The first of these laws appeared in Illinois in 1871, and was somewhat modified in 1873. In 1874 the same influences accomplished the passage of the famous Potter law in Wisconsin and other regulative acts in Iowa and Minnesota. That these should be bitterly opposed by the railways was expected but, in *Munn* v. *Illinois*, the United States Supreme Court upheld the right of the state to regulate "properties burdened with a public interest." Thus, regulation became not a constitutional question but one of expediency. Federal interest in the railway question at this time did not go beyond an investigation by the Windom Committee, which recommended, in 1874, that Congress establish control of financial practices and enforce a lower rate level through the stimulation of competition. Yet, despite continued hostility toward the railways, Granger legislation was largely repealed within a brief time. The collapse of 1873 convinced many leaders that close regulation was a mistaken policy if financial rehabilitation and further construction were to be promoted. And this, after all, is the fundamental interest of a people during earlier periods. In speaking of the striking change of public attitude toward the railway industry which took place between 1865 and 1873 and of legislation relating to that enterprise, Ringwalt makes this interesting comment: "It seemed to be considered a prominent part of the duty of legislatures and Congress to devise methods for regulating railways and modes of conducting railway operations after 1870, whereas previous to that time the chief concern of the national and state law-makers was to devise measures for facilitating the construction of new lines. It is to be regretted that the amount of wisdom brought to both of these tasks fell considerably below the desired quantity." And it is not amiss to add that legislatures and Congress long continued to act with less than needed wisdom upon railway questions.

PROGRESS TOWARD PLANT EFFICIENCY

Among other matters of interest during this period was a distinct forward movement in the mechanics of railway construction and operation. American roadway standards were steadily improved, and to this end nothing contributed more than a beginning in the substitution of the steel rail for the iron. This was made possible by the development of the Bessemer process and occurred during the latter part of the period. The general substitution of iron and masonry for the old type of covered wooden structure greatly improved bridge construction. Numerous large and important streams were bridged for the first time by the railway, among them being the Mississippi, the Ohio, and the Monongahela. Advancement both in types of locomotives and in the methods of their construction was in evidence. The consolidation and mogul types of greatly increased size and tractive power appeared and in locomotive construction the steel tire and the use of steel in fire-box, flue, and boiler represented long, forward strides. Indeed, it was early during this period that the first successful coal-burning locomotives were put into service after long experimentation and numerous failures. Car construction progressed, in the freight field both as to capacity and mechanical perfection, in the passenger, primarily as to comfort. Of the many improvements in the passenger car none was more important than those made by Pullman, who constructed, in 1864, the first satisfactory sleeping car which operated upon American railways.

In the operation of trains two forward steps of fundamental significance were made, the utilization of the telegraph and the development and application of the Westinghouse air-brake. Telegraphic communication removed the major obstacle to certainty and speed of train movement, thereby increasing traffic capacity greatly, and the air-brake gave the engineer such a degree of control over his train that it gained immediate acceptance in even an unde-

veloped form. First employed in the late sixties, this improvement quickly displaced hand braking on passenger trains and ultimately supplanted it in every field of operation.

CONSEQUENCES OF DECLINE IN RAILWAY CHARGES

The general decline in the level of railway charges during this period as compared with the one preceding also deserves comment. In a summary made by Ringwalt for the year 1848, it appears that the average rate of fare per passenger-mile for first and for second class passenger service, covering more than 6,700 miles of line, was 3.6 and 3.21 cents, respectively, the state averages varying from a minimum of 2.43, first class, in Massachusetts, and 1.50 second class in New York, to 5.35 for both classes in Mississippi. For first and second class freight the average rates per ton-mile for the entire country were 8.97 and 6.16 cents, the extreme figures being 4 cents, first class, in Vermont, and 3.12 cents, second class, in Maryland, and 24.3 and 17.3, respectively, for Mississippi. Although wholly comparable figures are not available for a later period, the marked change in the general level of freight charges is indicated by the fact that in 1870 average ton-mile earnings for the New York Central, the Erie, and the Pennsylvania were 1.853, 1.333, and 1.549 cents respectively. The decline in passenger charges was comparatively less, however, an improved service being offered instead.

During this period it was, too, that the railways first gave clear evidence of the great part which they were to play in the commerce of the country. Perhaps this growth in traffic importance can be shown no better than by comparing the tonnage statistics of the Erie Canal and the essentially parallel rail lines, the New York Central and the Erie. In 1856 those three agencies moved 2,107,678, 776,112, and 943,215 tons respectively, while in 1872 the figures stood 3,662,560, 4,393,965, and 5,564,274 tons. Canal tonnage

increased, but that increase was negligible as compared with that of the competing rail lines. Gains were registered by the railways at the expense of lake traffic also in the movement of wheat and flour, particularly the latter, with respect to which a sharp decline occurred in lake shipments in favor of rail. Another indication of the preponderant part played by railways toward the close of this period in the movement of traffic appears in the statement of internal revenue collections from the various agencies upon the basis of a 2½% tax on gross receipts, the railways contributing, in 1867, a total of $4,128,255.24, more than 10 times the sum received from all other sources, the largest single figure other than railway receipts being less than $250,000 from stage-coaches!

EXTENT OF THE RAILWAY NET

At the close of this period, there were practically no centers of importance which were not linked by rail with the older and more highly developed areas. Chicago was reached in the early fifties from the East and shortly thereafter St. Louis and other points on the Mississippi were gained, from which lines were soon extended to the Missouri at several points. St. Paul and Duluth were joined by rail with the East and the completion of the first transcontinental linked the Pacific Coast with country east of the Missouri. Numerous lines had also been constructed in the South, the more important areas as well as all the larger centers enjoying rail service, among them being Memphis, Nashville, New Orleans, Mobile, and Norfolk. By the close of this era the framework of the railway structure east of the Missouri and Mississippi had been constructed and needed, in the main, only "filling in." But to the west lay a great empire awaiting the coming of the rails.

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VI

GENESIS OF THE RAILWAY PROBLEM

Limits of the period. Influence of extraneous events. Increase in railway mileage. Public aid as an explanation of mileage growth. Foreign support of American railway construction. The western movement of population. Extension of transcontinental lines. Policy of public aid abandoned. Continuance and intensification of competition. Influence of competition on rates. Discrimination becomes a major problem. Decline of water traffic. Increased efficiency of railway operations. Further development of railway cooperation. Southern Railway and Steamship Association. Reappearance of the demand for regulation. Federal and state regulatory acts. Increase in railway investment. Overcapitalization and its causes. Morality of financial practices during this period. Change in financial policy. Importance of this period in railway history.

If, as one writer has suggested, the first period in the development of American railways be regarded as the infancy of that great enterprise and the second as the age of youth, then it may be truly said that during this, the third period, maturity was attained both in size and capacity for effective public service. Indeed, at the close of the period the railways of the country stood ready to serve beyond its economic capacity to support such service adequately—a fact which has had an important bearing upon the financial and public status of the railways during the past quarter of a century.

Marking off this third period from the one preceding is the panic of 1873 with its consequences, direct and incidental—the decline in construction of new lines and the financial reorganization of many properties already wholly or partially completed, together with the disappearance for a time, especially in the West, of the insistent demand for the stringent regulation of railways. During the depression which followed this sharp collapse, funds would have

been difficult to secure for the most promising of enterprises, but after the unbounded confidence of American and foreign investor alike had been well-nigh destroyed by the thoroughness of the financial disaster which overtook many promising projects, it is not strange that construction diminished sharply for a time. And the humorous aspect of regulating railways because of excessive rates, when much of the mileage in those sections where patrons demanded regulation most insistently was in the hands of receivers, appealed even to legislatures in the granger states in which the burden of the depression rested perhaps most heavily. Though it might be added that the possibilities of intelligent and constructive regulation were never greater for railway and public alike. Closing the period was a situation somewhat comparable to its beginning—the panic of 1893, with its resultant cessation in construction and general financial overhauling and reorganization of railway properties. The panic of 1873 caused a temporary cessation in spectacular extensive development; the panic of 1893 marked its end.

INFLUENCE OF EXTRANEOUS EVENTS

During this third period, railway development was influenced materially by three extraneous occurrences. Although each of these operated as a causative factor upon the railway, in reality an interaction existed which makes it difficult even now for students to distinguish unerringly cause and effect. The first of these occurrences was the rapid westward movement of population which distinguished this period as it has perhaps none other in American history, since the first great trek across the Appalachian Barrier. The magnitude of this movement is clearly seen in the population figures for 1870 and 1890. The census of the former year showed 10,471,630 people living in the states west of the Mississippi, together with Illinois and Wisconsin, or a little more than a fourth of the total for the United States. In the next 20 years the population of

this Western area more than doubled while that of the remainder of the United States increased but slightly more than 40%. During this period Kansas and Nebraska alone showed a growth in population of 2,000,000—four times the combined figures for 1870. Many of the newer states in the mountain territory enjoyed an even more striking development; the state of Washington in 1890 had more than fifteen times the number of inhabitants that it had in 1870.

A second development clearly apparent during this third period and particularly from the late seventies down to about 1891 was the movement toward industrialization. The extent of this movement is best shown, perhaps, by the following figures:

Year	Number of Establishments	Number of Employees	Amount of Capital	Value of Products
1870.....	252,148	2,053,996	$2,118,208,769	$4,232,325,442
1880.....	253,852	2,732,595	2,790,272,606	5,369,579,191
1890.....	355,415	4,251,613	6,525,156,486	9,372,437,238

The influence of the panic of 1873 is clearly apparent in the slower rate of progress made in the decade prior to 1880 than in the following ten years. This rapid progress was both intensive and extensive: additional plants were established in older areas and new industrial districts and new enterprises were developed. Extensive progress was probably the more important and served as a basis for the further expansion of the railway net, just as the other necessitated a minor intensive growth. A third factor was the series of financial crises which occurred throughout the period. Of these the most serious marked its close, namely the panic of 1893, of which more is said later. Nevertheless, the brief disturbance of 1884, often called the "Railroad Panic" because of the important part which too rapid building played in precipitating the crisis, also left its mark, as did the less important hesitation in 1891 that followed the Baring collapse. Had any one of these three important factors been lacking, the course of railway development

would have been materially modified in the score of years here under discussion.

THE INCREASE IN RAILWAY MILEAGE

Without doubt the most striking feature of the two decades embraced within the third period is the increase of mileage, an increase which was nothing short of spectacular. With but 68,485 miles of railway in operation at the close of 1873, official records show 176,461 miles completed by mid-year in 1893, with a probable total of approximately 177,500 miles at the close of the year—an addition of about 109,000 miles within a score of years, an average of nearly 5,500 miles per year. Never in the history of another country has there appeared such a long-sustained orgy of railway building and it is doubtful if the world will ever again witness such a mad forward drive of "the end of the rails" as characterized this era in America! But not alone is the total figure of interest; the distribution of this construction by years reflects strikingly the financial and speculative temper of the period. As might be expected, the years immediately following the panic of 1873 were ones of recuperation; indeed, it was not until 1879 that mileage construction exceeded normal. In that year completed mileage exceeded 5,000—more than double that of the one preceding. Dropping but little the following year, the annual increment reached 8,125 in 1881 and in 1882 reached the enormous total of 11,116. In 1883 the total dropped slightly, but 9,751 was added even that year; in 1884 and 1885 the financial difficulties of 1884 caused a sharp slump in construction. In 1886 the upward trend was again resumed and in 1887 the amazing total mileage of 12,041 was added, an amount practically equal to the 10-year construction of the decade 1911-1920. That such a pace could be continued was impossible, yet the impetus of operations during that year resulted in the addition of 9,320 miles in the succeeding year. Following 1888 activity diminished,

the average for the remaining 5 years of the period being approximately 5,000 miles. The figures given show that construction was particularly rapid during the eighties, and this is established clearly by the fact that the decade beginning with 1880, despite several years of scant construction, must be credited with the addition of 71,073 miles to the railway net, a total which exceeds that of the first 45 years of railway building in the United States and which falls but little below that of the past 30 years. Truly a phenomenal record! In the face of the complexity of business and financial relationships which necessarily arose as a result of this great and rapid expansion, it is not strange that the combination of public inaction and of unwise or ineffective action should fail completely to protect either public or corporate interests.

As might be expected, the bulk of the increase in mileage which featured this period was in the West. To the total railway construction of this period the New England states contributed less than 2%, while the rest of what constitutes the Eastern district and the Southern district each contributed 16%. To the Western district is assignable, therefore, over 66% of the total mileage, of which a third was built in Illinois, Wisconsin, Minnesota, Iowa, and Missouri. The predominant position of western construction during the two peak years also is shown in the fact that in 1882 more than 2,000 miles of railway were laid down in the states just named and almost 5,500 in the remainder of Western territory, while in 1887 the figures for these two portions stood at 1,651 and 8,105 respectively. As building progressed, the saturation point was approached in the older sections and the railway pioneer moved west and southwest with the frontier of economic and social development.

MILEAGE GROWTH AND PUBLIC AID

This unparalleled expansion of the railway is to be explained by no single factor but perhaps most important to

an understanding of it during this, as the preceding period, is an appreciation of the extent of public aid to construction. This aid took many forms, but the land grant probably contributed more to early and pioneer mileage than several other factors combined. As early as 1880 more than 15% of the total mileage of the country was land-grant mileage and this despite the fact that comparatively little progress had been made as yet by many corporations operating under the more recent grants. That the land grant was bound to influence construction markedly during the remainder of the period is indicated by railway ownership as late as 1880 of some 78,000,000 acres received from both federal and state sources. It is only fair, however, to point out that land-grant aid was not as significant as acreage would indicate. The highest average price obtained by land-grant railways for acreage sold up to 1880 was but $12.50 by the Grand Rapids and Indiana for about 250,000 acres, a figure much in excess of that generally received. A large part of the land granted lay in the West and there few figures in excess of $2 are shown; indeed, more than 2,000,000 acres had been marketed prior to this time at prices varying from 14 cents to as low as 6 cents per acre. It is said that the holdings of the Texas and Pacific averaged that corporation approximately 13 cents per acre, sold as they were at an early date, though later sales of even western prairie lands undoubtedly brought a higher average price. The railways which were able to finance construction without the sale of lands granted fared better, but few of the early projects were so strongly situated financially as to permit of the adoption of such a conservative policy.

Grants of land represented but one form of public aid. State aid had been given almost universally during an earlier period, commonwealths north, south, east, and west lending enthusiastic support to railway projects in the form of donations, stock subscriptions, or loans secured by railway bonds, though it might be added that whatever the original form, such aid was generally the equivalent of a donation

in the end. Even the Federal Government lent its credit to the construction of early transcontinentals to an amount approaching $65,000,000. During this period, however, state aid had been eliminated largely by constitutional prohibitions, except in the South where considerable sums were given to encourage railway construction during the reconstruction era. But though state aid had largely passed, smaller political units—county, township, even city and village—fell easy prey to the wiles of the promoter. Each section, each locality, pictured itself upon the threshold of a glorious future, and the minor detail of meeting payments, often, indeed, of so circumscribing the issue as to make sure of the railway for which bonds were voted, was overlooked. Many localities voted themselves into poverty to secure a railway of doubtful value—and some failed even to secure the railway. In Nebraska alone 43 counties voted railway aid to the extent of $4,918,000 between 1869 and 1892, and this generosity was typical of the West during this, a period of feverish development. When to governmental aid in land and moneys, donations and loans, are added the large sums contributed by individuals, the important part played by the public as a benefactor in railway construction is evident. Estimating the total of financial aid alone received by the railways at $700,000,000 Ripley says, "Wisconsin in 1874 had officially subsidized its roads to the amount of over $21,000,000, including lands at three dollars per acre. This sum was sufficient to have met half the legitimate cost of construction then existent. Reliable evidence tends to show that the state and national governments up to 1870, had pledged themselves one way or another for a sum equivalent to one-fifth of the cost of construction of the 47,000 miles of line then in the United States. And approximately another fifth, at the very least, must have been contributed from local and municipal sources." Yet during early years that aid, from a railway standpoint, was offset all too often by premature and excessive construction and more recently by rate concessions

under land-grant provisions; where not thus offset, the almost criminal failure of the public to control financial practices has resulted in the enrichment of speculator and promoter at the expense of those now owning the properties and charged with their administration.

FOREIGN SUPPORT OF AMERICAN RAILWAY CONSTRUCTION

Although public aid in the form of loans and grants of land served as the immediate basis of railway development, the ready market which Europe furnished for governmental securities and for the large volume of land-grant bonds, made possible largely the raising of the actual funds necessary to the construction of the property. Even during the second period in the development of America's railway mileage the overseas contribution was large, as is shown by the fact that $150,000,000 of railway securities, largely land-grant bonds, in default in 1873-1874 were held in England, Holland, and Germany; also by the fact that as late as 1876, 86% of the outstanding Illinois Central stock was held abroad and Dutch interests in the Chicago and North Western were sufficient to justify their being given two representatives on the board of directors. Discouraged by the losses of the early seventies, due to financial malpractice and to the collapse of many properties during the panic of 1873, foreign investments were sparingly made for a brief time. However, American railway securities appeared so attractive that they again drew the attention of European capitalists, and it seems that not less than two billion dollars' worth of American railway paper was sold abroad during this period. Table 5, on page 127, shows that the holdings of foreign investors in American railways were large, for it is certain that bonds found an even readier market abroad than did stocks. In view of this showing, as well as other facts, such as the close relationship of the failure of the Atchison, Topeka, and Santa Fe to the collapse of the English

TABLE 5

STOCKHOLDINGS OF FOREIGN INVESTORS IN AMERICAN RAILWAYS, 1890-96 [1]

Railroads	Percentage
Illinois Central	65
Pennsylvania	52
Louisville and Nashville	75
New York, Ontario and Western	58
New York Central and Hudson River	37
Reading	52
Great Northern	33
Baltimore and Ohio	21
Chicago, Milwaukee, and St. Paul	21

house of Baring, it is evident that foreign interests supplied in no small degree the sinews of construction for that phenomenal expansion which began in the late seventies and closed with the panic of 1893.

OTHER FACTORS PROMOTING EXPANSION

Yet a third factor which did much to promote railway building during this period was the tremendous westward sweep of population noted before. True, in many cases the railway arrived first, blazed the trail, but had there not been reasonable assurance that, with the railway in the field, settlers in considerable numbers would quickly follow, even much of the land-grant mileage could not have been financed. Quite naturally the enthusiasm of those who hoped to reap a financial harvest from the construction of these pioneer roads led them to paint altogether too rosy a picture for that time; the financial disillusionment following exerted a depressing influence in later years upon the position of railway securities in the investment market.

Indeed, the operations of the speculative fraternity with the oily-tongued promoter in the van, may well be regarded as a fourth significant factor in the spectacular increase in

[1] Ripley, W. Z., *Railroads: Finance and Organization*, p. 5.

mileage during this third period. In the main, such operations were most successful in sections inadequately supplied with railway mileage. In such areas many properties were built which lacked a sound economic basis for more than a quarter of a century, serving in the meantime only to discredit the railway with investor and patron alike; others which offered utterly no promise were soon chronicled only in tables of "Mileage Abandoned." But, even in older sections, speculative construction made its appearance, and here in that inexcusable form of parallel building. Typical of such operations were the building of the West Shore to compete with the New York Central, and the New York, Chicago, and St. Louis—the "Nickel Plate"—to compete with the Lake Shore and Michigan Southern, with the expectation in each instance of forcing the older properties to take over the newer at a profit—to the promoter—to avoid disastrous competition. This latter field of operation was opened to the speculator by the general abandonment of the policy of chartering each railway corporation by special legislative act, with the accompanying inquiry "into the necessity and usefulness of the line proposed, or the financial ability and integrity of the parties who propose to construct it." Certain it is, if the modern requirement of a "certificate of convenience and necessity" had been applied during the period of rapid construction, it would have been of inestimable service to railway, investor, and public alike.

EXTENSION OF TRANSCONTINENTAL SERVICE

Closely associated with the increase of mileage just described and, indeed, an integral part of it but sufficiently important to warrant separate consideration, is a second major feature, the development of transcontinental service. Although practically all of the lines which reached the coast in 1893 had been begun under one name or another prior to 1873, but one had been completed. During the third period no less than four major routes were opened and a fifth com-

bination of routes appeared. Of these new routes, the first to bridge the gap from East to West was the Southern Pacific. Originally projected to connect with the Texas and Pacific at the Colorado River, construction was pushed forward so rapidly under the direction of the experienced group which had built the Central Pacific that the connection was made east of El Paso instead. The route followed was essentially that advocated by the South prior to the Civil War, at no time far distant from the southern boundary of the United States and crossing the Colorado River next to the Mexican border. Thence the line runs to Los Angeles and through the valley of the San Joaquin to San Francisco. This property, completed in 1881, was supplemented at an early date by boat lines operating from Gulf ports to New York and other Atlantic ports, thus making possible the only truly transcontinental movement of traffic, by a single management, in the United States.

In this Southern section a second line appeared during this period, the Atchison, Topeka, and Santa Fe. The project was born in the midst of a famine period in the Southwest, and there is little wonder that its prophet, Col. Holliday, was greeted with wild laughter when he painted, at a celebration held in honor of the completion of the first few miles of track, a glorious picture of its future progress to the Gulf of Mexico on the south and the Golden Gate in the west. Yet within a quarter of a century the prophet's dream was an accomplished fact. With the support of Boston capitalists and, through them, of foreign investors, the project was pushed vigorously. Building through New Mexico and Arizona to Barstow, California, upon the basis of the old Atlantic and Pacific grant, a junction was formed with the Southern Pacific property at that place in 1885; from that point San Francisco was reached by a series of leases, the needed properties being later purchased. In the meantime construction had been carried to the eastward with the result that the Santa Fe was for many years the only one of the transcontinental lines to operate over its own rails from

Chicago to the coast. It might be well to add, however, that the tremendous expansion which characterized the property during this stage of its development resulted in failure in 1891 and again in 1893 when a drastic reorganization was forced upon its security holders in the interest of future strength.

Nor was transcontinental construction progressing in the Southwest only; rapid headway was being made also in the Northwest. The Northern Pacific, well under way at the close of 1873, had been brought to an absolute halt by the collapse of Jay Cooke in that year, and important construction work was not resumed until 1880. But in 1881 a new leader, Henry Villard, appeared, and under his direction and in response to his energy the property was completed to the Pacific Coast before the close of 1883. Incidentally it is worthy of note that this railway enjoyed perhaps the heaviest aid, through its land grants, of any of the transcontinentals, much of the acreage received being covered by valuable timber. In this northern section there was completed during the period a second railway from the Twin Cities to the Pacific Coast. This project is of especial interest because land-grant aid was of minor importance in its construction; also because it was this property, developed from an earlier bankrupt project taken over by James J. Hill in 1879, that signalized the rise of another strong leader in the railway field. A bankrupt project, reorganized as the St. Paul, Minneapolis, and Manitoba, was extended, and later leased, together with other connecting roads, to the Great Northern, which completed its line into Seattle in 1893. Under the masterful guidance of Hill odd scraps of railways and financially decrepit properties were welded together into a transcontinental carrier which was soon to form the nucleus of one of the great ownership groupings of American railways and, as such, to dominate a rival which even yet has not wholly forgotten its early contempt for the plebeian origin of its neighbor.

Because of the character of the country through which

another central route must be built, the Union Pacific–Central Pacific route was confronted with little that might be regarded as competitive construction during this period. True, under the leadership of General William J. Palmer, the Denver and Rio Grande had been driven westward from Pueblo and thence northward to Salt Lake City by 1883, and another line from Ogden to the coast had appeared in 1884 with the junction of the Oregon Short Line, the Utah Northern, and the Oregon Railway and Navigation Company, Portland being the terminus of this route. However, these lines, even though operated in conjunction, were in no position to compete with the older route because of location and higher operating costs. Even today there exists no effective competition in this section, though other lines have been built or suggested in the northern and southern sections of the West.

POLICY OF PUBLIC AID ABANDONED

The almost complete abandonment of the policy of extending public aid to railway construction is a third outstanding characteristic of the 20 years following 1873. Perhaps the major factor explaining this reversal of policy was a gradual realization that the gains were not worth the cost, yet it is undoubted that certain evils which had appeared incident to the policy had tended to prejudice the public against its continuance. Then, too, after the amazing extension of mileage during the eighties, the feeling was widespread that it was time to begin "catching up" economically to the mileage already in existence. The reaction against the artificial stimulation of construction first appeared in declining state and local aid, but because each section and each locality seemed to have to learn the painful lesson from its own experience, aid from these sources has been the last to disappear. Against the entire policy of public aid Cleveland and Powell summarize the case well in saying that it "was not only unnecessary and productive of extravagance

and fraud, but also that it was of questionable value to the companies themselves. It has been urged by some that the corporations as a whole would have been better capitalized and better managed if they had been left entirely to private investment interests. If some lines were built earlier than could have been possible without public aid, many others were constructed over routes which could not furnish enough traffic to support them. This not only involved a great loss of public money, but it was in large part responsible for much of the subsequent controversy over the matter of rates." Excessive and ill-placed mileage, corruption of the legislature or of the electorate as the case might demand, fraudulent operations under legislative acts, and plain evasions of the law developed in connection with state and local aid. That restrictive measures, intended to end practices which had resulted in much harm and comparatively little good, should be placed upon the statute books and even in state constitutions themselves, was inevitable. In few commonwealths can the smaller units now contribute at all and to yet fewer of the commonwealths themselves is participation in the financing of such as railway enterprises, by either donation or the extension of credit, permitted. Indeed, so closely are both state and local governments bound that it is often exceedingly difficult for the public to aid in the case of even carefully considered and meritorious projects, such as the needed tunnel in Colorado for the Denver and Salt Lake Railroad.

The states and local units were not alone in the harvesting of tares incident to the grants of aid made in behalf of railways. Aside from the fact that much of the mileage constructed under land grants was built years too soon and that, where an economic basis existed, lines would have been built with but little delay without such aid, other objections and evils appeared. Grants were invariably interpreted in a liberal manner from a corporate standpoint, with the result that indemnity lands were withdrawn from settlement and reserved, oftentimes, for years—in 1887 an adjustment of

grants restored 20,000,000 acres to settlement—and that in cases where grants had expired the courts held that no forfeiture worked except by positive action to that end on the part of Congress. Furthermore, the policy of certain railways of reserving lands instead of opening them for development proved inimical to public interest. Then, too, outright fraud was often present in connection with the land-grant policy. But apart from the opposition aroused by evils incident to the system and the general feeling that construction had surpassed needs, the desire to reserve remaining lands for settlement under the homestead and other land settlement acts served to strengthen the hand of those demanding a discontinuance of that policy.

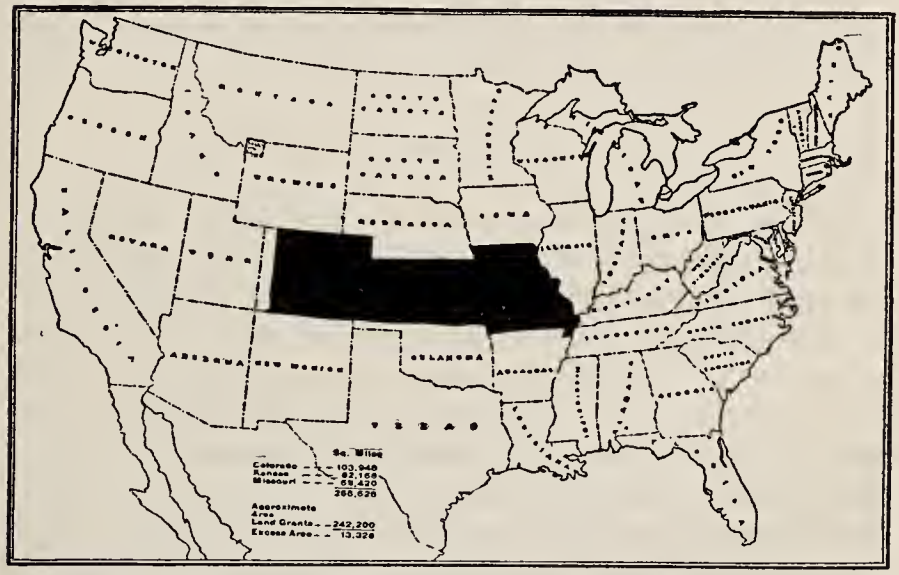

Figure 4: Area, shown in black, of public land to which railways obtained title under various land grants.

The opposition to giving further lands took definite form first in the refusal to assist additional projects after the large grant to the Texas and Pacific in 1871. As opposition increased, a few specific forfeiture acts were passed, but it was not until 1890 that a general act could be placed upon the statute books providing for the forfeiture of all

lands along projected routes which were not at that time completed and in operation. Title to considerable areas of land, particularly in California, has been in dispute even within recent years, and patents have not yet been granted to all lands to which some of the western carriers are entitled because of certain minor legal questions that remain unsettled. Seemingly, it bids fair to be three quarters of a century from the time of the first grant until "finis" can be written at the end of the chapter on federal aid. Yet, whatever criticisms may rightly be made of federal assistance to railway construction, it is evident that when results are judged from a political and social standpoint as well as the standpoint of economic gains, a happier balance appears. To such aid is attributable in a considerable measure the early gridironing of the new West, and this, in turn, made possible rapid settlement and development.

CONTINUANCE OF INTENSE COMPETITION

Another striking feature of the third period in railway development was a continuance and an intensification of competitive action which had first proved disturbing late in the preceding period. During this further development of competition all of the influences which operated in the years prior to 1874 continued to exert undiminished force and, in certain instances, greater force because of the further extension of the railway net. Market competition among the Atlantic ports, each with its representative railway, continued with increased vigor, and the struggle among the market centers of the Middle West was sharpened by the addition of other lines. To these phases of market competition were added the struggle of the Gulf ports to share with the Atlantic gateways in the grain traffic of the West, and the appearance of market rivalries in the Rocky Mountain and Pacific regions. Excessive construction also continued as a disturbing factor, entering even into the older regions as the result of "hold-up," or parallel, construction

which appeared upon a large scale during this period. But in addition to these factors and the very nature of the railway business itself, two new causes for competition appeared. Of these, one was temporary in character but the other has become more important with the passage of years. The first was the pressure which the depression following the severe panic of 1873 exerted upon the railways to secure business and to secure it with but little reference to source or method. This pressure was felt keenly not only in areas of light traffic but in older and more developed sections as well. The second, and the more significant, was the appearance of industrial competition. With the rapid industrialization of that area lying between Buffalo and Pittsburgh on the east and Chicago and St. Louis on the west, the dominance of the eastern industrial section was challenged not only in the Middle West and the South, but even in the Far West, with fundamental effects upon competitive conditions which were reflected in rate adjustments and railway relationships, individual and group. These various forces operating together compelled competition of an extreme type, the keenest and most ruthless in American railway history. Its results were definite and striking.

INFLUENCE OF COMPETITION ON RATES

The immediate consequence of this struggle for business appeared in sudden and wide fluctuations of rates. Competitive carriers indulged in open warfare over freight traffic more often than over passenger business, yet both were involved. As illustrative of the extremes of competitive action relative to live stock shipments it is declared "that at one time cattle were hauled from Chicago to Pittsburgh without charge, and that in certain instances they were hauled from Chicago to the seaboard for $5 per carload," and this in the face of a normal rate for the latter service of $110 per car. Grain was hauled from Chicago to the Atlantic ports for as little as 7½ cents per hundredweight and

a Boston merchant is reputed to have found that he could make a profit by shipping lemons, grown in California and forwarded to him in the East, back to California for resale on the basis of current rates. This wide fluctuation of freight rates is well illustrated again by a brief record of the movement of the charge from New York to Chicago on first class shipments, as shown in Table 6 below.

TABLE 6

NEW YORK–CHICAGO RATES, FIRST CLASS, IN CENTS PER HUNDREDWEIGHT, 1874-1888

Date	Rate	Date	Rate
1874—January	100	1881—August	45
August	75	November	60
1875—January	100	1882—January	45
May	40	November	75
1876—January	75	1885—January	50
July	15	November	75
1877—March	75	1888—November	50
October	100	December	75
1878—February	75		

But cut-throat activity was not confined to the freight business. Immigrants were carried from New York to Chicago for as little as $1 a head and, at one time, as a result of a rate war for Pacific Coast passenger business a like rate from Chicago to San Francisco, including meals, is reputed to have been made. Other instances comparable to these might be cited, both in the freight and passenger fields, but the facts already given permit of no doubt as to the startling and destructive character of the struggle. And this struggle injured shipper as well as railway, for even high rates are less disturbing and less hurtful to the patron than rapidly and widely changing rates.

However much both parties may have lost through rapid and wide fluctuations of rates when competition got beyond control, the struggle among the carriers benefited the public by lowering the general rate level, particularly with respect to freight traffic. This decline was great in the case of certain lines, and apparent for the railways of the entire coun-

try. Although the downward movement was essentially continuous throughout the period, the major decline appeared in the years preceding 1886. During those years the average earnings per ton-mile upon the New York Central dropped from 1.573 cents to less than .9 cents, while the decrease on the Pennsylvania, a rival line, was from 1.416 cents to less than .75 cents. Upon the Pittsburgh, Fort Wayne, and Chicago, the average declined from 1.40 cents in 1873 to slightly less than half that in 1884, and the charges for all important lines radiating from Chicago in an eastern, southern, and western direction dropped from 1.813 cents to 1.071 cents during the same period. For the country as a whole, the average ton-mile rate fell from approximately 1.6 cents in 1873 to slightly above 1.1 cents in 1884 and less than .9 cents in 1893. A corrected index, based upon the averages of actual published rates, shows for the entire country an equally striking decline; the average for 1878 which is the first year for which it has been computed was 1.30 cents per ton-mile while in 1893 it had fallen to less than .8 cents.

DISCRIMINATION BECOMES A MAJOR PROBLEM

Another result largely attributable to the intense competition of this period was the appearance of discrimination as a major problem. Although railways had long given preference to communities in which they were peculiarly interested, and had shown certain favoritism even as among shippers, it was not until the mad scramble during the competitive struggle of the seventies and eighties that these discriminations became general and pronounced. Discrimination developed at both monopolistic and competitive points though at the former alone could discrimination be economically justified even from the standpoint of the railway: personal discrimination was essentially the result of official favoritism or of unwise, vicious competition. The higher level of rates at non-competitive points normally

resulted from a decline of rates between competitive centers rather than from any increase in rates at the expense of those complaining of prejudice. This policy with respect to the competitive centers was forced upon the railways by their inability, because of legal or business reasons, to fix a schedule of rates between such points that would be reasonably compensatory. But, however necessary such a policy may have been from the carrier standpoint, it resulted in loud and bitter complaints from those sections in which competition did not exist, and especially so since more often than not those non-competitive areas had contributed generously in public and in private aid to the construction of the property as compared with competitive centers already supplied with mileage. The reasonableness of hauling goods a greater distance to a competitive point at a lesser charge than that assessed against like shipments to a nearer monopolistic point was not evident to the farmer and tradesman, who were but little versed in the economics of railway operation, and, it might be added, could be explained in no logical manner by those learned in such matters. Even the rate which did not run directly counter to the distance principle but was in nowise proportionate to distance and always to the advantage of the competitive center, was seriously questioned. The existence of discrimination as between competitive and non-competitive areas became increasingly unreasonable as competition developed and as means of cooperation proved inadequate. Discrimination was rightly singled out by the Cullom Committee in 1885 as one of the outstanding evils of this period.

To discrimination against non-competitive points during this period was added preferential treatment at competitive points. Here place discrimination was a minor factor, though railway policy often decreed that an advantage should be given to one competitive point over another. But at competitive points personal discrimination was the outstanding evil. Although upon first thought there seems to be no sound reason for offering one of several business com-

petitors at a given point a better rate than is accorded to his fellows, the railways actually found that such a policy, if judiciously followed, resulted in increased tonnage. An open rate, known to competitive lines and equaled or undercut by them, failed to make inroads upon the total of competitive business, but if a secret rate were accorded an enterprising shipper he would be enabled to overreach his rivals and, as his volume of business increased, the tonnage of the cooperating carrier would increase proportionately. It was not long, however, until the value of the secret rate was realized by all competing carriers and, with that, it lost its value to all and became a menace not only to those enterprises not favored but also to the revenues of the carriers. Indeed, so serious a menace did it become to the carriers' financial success and so firm a grip did it obtain that the railways later invoked government assistance to enable them to "let go." Alone they found it impossible to deal with the powerful industrial units toward whose semi-monopolistic position they had earlier, and unwittingly, contributed so much.

Public protest during the early seventies had been against a rate level which seemed abnormally high in proportion to the value of goods, particularly farm products; during this period it was against discrimination. Prejudiced communities and prejudiced individuals felt justified in complaining against the highly discriminatory charges and, however much the exigencies of competition may have compelled certain departures from a normal standard of equitable treatment, it is evident that discrimination often went much further than the competitive situation demanded and partook of gross personal favoritism. The public was in error in its efforts to curb attempts made by the carriers to bring competition under control, and the discriminatory practices which persisted *because* of inadequate control were largely responsible for the rising tide of popular opposition which culminated in further efforts to subject the railway to regulation during this and the succeeding period.

DECLINE OF WATER TRAFFIC

Yet another consequence of sharp competition and the resultant decline of the general rate level, was the realization by the railways that they could carry profitably, as additional business, even low-grade traffic. As they thus extended their traffic field an actual decline in water traffic followed. This decline was noticeable not only with respect to canal and river traffic but even with respect to coastwise movements, particularly the Pacific-Atlantic tonnage. Few canals had functioned in any but a minor way following the Civil War, the Erie Canal alone retaining a position of importance. During the late sixties practically all grain shipped to New York moved by canal and this waterway had, in 1855, carried twice the tonnage handled by all the trunk lines, but in the early sixties a tonnage parity was attained by the railways and in 1873 the canal was handling little more than a quarter of the tonnage destined into New York alone. During this period the decline had been a relative one, however, rather than absolute, but after 1873 it tended to become absolute as well. Indeed, at the close of the first decade of this period the Erie Canal was carrying not only a smaller total tonnage but its proportion of the tonnage entering New York had declined to little more than a tenth; during the later seventies control of the grain traffic passed largely to the railways.

This same movement of traffic from rivers and even from coastwise trade toward the railways was evident. An estimate of the value of the commerce conducted on the Ohio River in 1869 and in 1886 indicated that in the latter year it had dropped to less than half of the total shown for 1869; in explanation, this comment appears: "The apparent decline of river traffic at various points is not indicative of commercial decay of such communities. The almost omnipresent rail competition is an element in the count that brings up commercial footings to several times more than the totals of water transportation for all points where the

two run counter to each other." [1] In the commercial year of 1872-73 New Orleans received more than 75% of the total value of all receipts by water while in 1886-87 that percentage had been reduced to little more than a third, with a decline in actual values received by water for the latter year to approximately two-fifths of the figure for the former! Even at St. Louis, which was already a railway center in the early seventies, the percentage of total tonnage received and shipped by water dropped from about 34 in 1871 to little more than 10 in 1887, with an absolute decrease also shown. After 1880 the great western rivers became steadily of less significance, and traffic upon all but the most important and easily navigable streams had "gone down Salt Creek" a decade or more previously. That the railways had succeeded in wresting the control of tonnage which might move by rail or by coastwise vessels from the hands of the water carriers by the close of this period is attested by a decline in coastwise shipping, despite the sharp increase in the amount of competitive tonnage available. This was true not only of tonnage which might move between North Atlantic ports and South Atlantic or Gulf ports but also between the Pacific Coast and the eastern portion of the United States. Indeed, statistics for the latter movement show that as late as 1878 the railways moved but about 25% of the Pacific-Eastern business while in 1890, following several years of open warfare, it was estimated that from 90% to 95% of the business was handled by rail. With respect to canal, river, and coastwise movement it could be said truly that, by the close of this period, they occupied a negligible position in the carrier field.

INCREASE IN EFFICIENCY OF RAILWAY OPERATIONS

A final result, ascribable in a considerable measure to the severity of competition, was the distinct impetus given to

[1] Report to Secretary of the Treasury by Chief of Bureau of Statistics, Jan. 30, 1888.

efficiency of operation during this period. This efficiency was a result, in part, of a better understanding of the nature of the railway business and the improvement in organization and management which followed, though perhaps more largely of the mechanical advancement which characterized the entire field of American industry during the last third of the nineteenth century. This better understanding came largely through the spur of necessity. Revenues were being sharply depleted by rate-cutting; if financial disaster were to be avoided there must be a comparable reduction in the cost of handling traffic. Illustrative of the more effective use of the plant which resulted was a change in locomotive practice. The traditional policy of assigning a locomotive to a particular crew, thus limiting its use by the capacity of the one crew to serve, was abandoned in favor of the "first in, first out" rule. Another illustration is found in the increasing emphasis upon heavier car loading and heavier train loading with the consequent demand for larger cars and greater tractive capacity of locomotives. In response to this influence the 10-ton load capacity of the seventies had increased to 20 tons in the latter eighties, with a distinct increase in the proportion of the paying load to the gross weight; the average train load was increased, too, through the more effective use of motive power as well as by improvements in that field, the increase being from approximately 100 tons to perhaps two and a half times that figure. With this more efficient handling of traffic came corresponding improvements in the roadway itself. At the beginning of the period roadway construction was comparatively primitive—such mileage as was ballasted used cinders and coarse sand and the steel rail was just coming into use; but by its close, marked advances had been scored. The roadbed itself had been greatly improved by the use of crushed rock, slag, and other durable material which gave good drainage, and the iron rail was rapidly disappearing. By 1880 the percentage of total mileage laid with steel had reached 29.1 and in 1893 the figure stood at 83.7, advanc-

ing to 96 within another decade. During this period, too, switching and signaling were greatly improved; the interlocking system made for greater efficiency and increased safety at important junctions and terminals while the development of an elementary block system aided in moving traffic "out on the line" more expeditiously and with less likelihood of collision. An advance in knowledge and the use of steel further improved bridge construction and during the period several important structures were completed; the Hudson was bridged at Poughkeepsie, the Ohio at Cairo, and the Niagara a short distance below the Falls, while structures across the Mississippi as far south as Memphis and Vicksburg were authorized. Growing traffic and a better realization of the importance of that portion of the railway plant led to greater attention to way, terminal, and shop facilities. Passenger stations were improved, freight terminals expanded and bettered, and shops for the maintenance and construction of equipment were enlarged and modernized. Not only did locomotives almost double in number during this period but, more important from the standpoint of efficiency, they also increased tremendously in size and capacity. The consolidation and mogul types, introduced in the sixties, were enlarged and gradually substituted for less efficient motive power in the freight service and the speed of passenger locomotives was increased until in 1886 the New York Central made the 149 miles between Syracuse and Buffalo in 136 minutes' running time, averaging therefore 65.6 miles per hour. For one stretch of 12.8 miles an average speed of 74.93 miles was attained. The development of standard types with interchangeable parts reduced costs, and the use of higher steam pressure with a better mechanism improved results. In addition to the increased capacity of freight-cars already mentioned, a greater diversity of types to suit the needs of different industries appeared, and the work of the Master Car Builders' Association, begun in 1865, resulted in improved and much more uniform construction of such equipment. Another im-

portant mechanical advance came in the development and gradual adoption of the Westinghouse automatic air brake, first upon passenger equipment, later upon all. The early air brake depended for action upon the application of pressure but it sometimes failed to operate properly and, in the case of a break in the train, was quite useless. The improved mechanism acted in the *absence* of pressure, and, in consequence, any closing of pipes, leakage, or "breaking" resulted in an immediate application of brakes. This improvement not only promoted safety but made possible much greater speed of movement without an undue increase in risk.

FURTHER DEVELOPMENT OF RAILWAY COOPERATION

Try as they would, however, many railways were unable to counterbalance the decrease in rates either by more efficient operation or by a volume of business increased by rate wars and the rapid industrial development of the country. As a result, each indulgence in cut-throat competition crowded the weaker lines involved just a little closer to the edge of the financial precipice—yet it was generally those weaker properties which were least willing to accept the *status quo,* and first to take steps which would bring about a collapse of the rate structure for a greater or lesser period. It was in an effort to escape the financial disaster threatened by such warfare that the movement to establish more effective control over competitive activities originated. This movement is yet another feature of this third period.

In the previous chapter it was noted that the first step toward the control of competition was the rate agreement. These agreements had uniformly collapsed, violation sometimes becoming evident almost "before the ink was dry"; the incentive to undercut secretly was stronger than the deterrent forces, even though the secret violation must ultimately or, perhaps, immediately precipitate a renewal of hostilities. As indicated elsewhere, the initial forward step

was represented by the pool. This type or agency of control embodied two fundamental provisions, the maintenance of rates upon an agreed basis and the apportionment of competitive business, this latter typically upon the basis of operations during the preceding year under pooling operations though perhaps upon the basis of a somewhat longer period at the inception of the organization. Pools were of two basic types, known as the traffic pool and the money pool, the former dividing competitive tonnage upon an agreed basis, thus practically necessitating the use of "eveners," the latter dividing the gains from competitive business upon a prescribed basis while permitting tonnage to move as it would. Of these two, the latter was the more common, since it avoided the preferential treatment accorded to the large shippers who served as "eveners" and placed in the hands of the pooling organization certain sums which might be declared forfeited to those faithful to the pooling arrangement in case of recalcitrance on the part of one or more of the carriers party to the agreement. And this feature was of vital importance to the maintenance of the terms of the agreement, extra-legal as the pool was. Perhaps one of the best illustrations of this form of control which was used widely during the seventies and early eighties was the Chicago-Omaha pool. This pool was organized in 1870 and controlled interrailway competition in its particular territory until superseded by a more highly developed type of organization. It was of the money type, and called for the equal division among the parties to the agreement—the Rock Island, the Burlington, and the North Western—of 55% of the revenues from competitive passenger operations and 50% of similar freight revenues. Only for a few months during its entire history did it fail to hold competition under complete control. Many other pools were organized throughout the country during this period which were attended with a considerable degree of success, but in the middle eighties they gave way to a broader type of organization, the traffic association.

SOUTHERN RAILWAY AND STEAMSHIP ASSOCIATION

The scope of these association agreements varied somewhat but, prior to 1887, the pooling of earnings or tonnage on competitive business was common to practically all, as was an accompanying provision covering the rates which were to govern the movement of such business. In addition, these agreements generally laid down rules to govern the solicitation of traffic, centered in the association the control of service in such manner as to minimize the severity of that form of competition, permitted the organization to determine the extent to which various privileges should be accorded shippers, and even prescribed the types of tickets that might be issued. Of the various associations which sprang into being during this period none is of greater interest than the Southern Railway and Steamship Association, organized in 1875, and operating in the section south of the Potomac and Ohio rivers and east of the Mississippi. Made essential because of the peculiarly active and therefore dangerous character of competition in this section, rail, river, and coastwise rivalry being abetted by both market and industrial competition, this organization was able to secure that high degree of centralization of power so necessary to the success of such an undertaking. The legislative function was exercised by a body of men, consisting of one representative of each carrier member, which met annually, while administrative functions were largely exercised by the General Commissioner. The powers of this officer were broad and the success of the association was due largely to the unusual capacity of the first man who served as General Commissioner, Albert Fink. Certain administrative functions, together with those of a judicial character, were vested in an executive committee which considered matters that the Commissioner was unable to handle, these matters being further referred to a board of arbitrators for adjudication unless a unanimous decision could be had from the committee. Under the operations of this association order soon

was brought from chaos in the territory concerned and, although members sought to withdraw and thereby reestablish earlier conditions, the nature of disciplinary action was such that it invariably brought the wanderer back in a chastened mood and tended to discourage further rebellious action. Percentage allotments were made annually and, in the effort to increase the controlling percentage, competition persisted among the parties to the agreement as well as among member and non-member carriers within the area covered, and between carriers of this territory and others in the form of market and industrial competition. The result, therefore, seemed to be the elimination of excessive competition rather than such competition as might be advantageous to both railway and public. And such a conclusion would seem to be justified with respect to the operation of similar associations and organizations, designed to control competition in other sections, or on special traffic, throughout the United States as a whole.

REAPPEARANCE OF DEMAND FOR REGULATION

A further movement toward railway regulation appeared at this time. Of the various causes accounting for the appearance of a demand for regulation at the close of the preceding period, but one was of less significance during this. However, the very force of that competition which lessened complaints against the high level of rates greatly magnified discrimination, both personal and place, and tended to abet the continuance of financial abuses rather than lessen or remove them. Furthermore, the continued and obstinate refusal of railway management to recognize any basis for public interference, together with the means employed to block action, incensed the public increasingly as time passed. But in addition to these older influences, certain new ones appeared. The fear of monopoly was thoroughly ingrained in American political consciousness, and the increasing effectiveness of railway cooperation seemed to bode

ill for an economic system founded upon the competitive ideal. Anti-monopoly organizations were formed in various states, the attitude of which was well put by a western governor who declared that from consolidation arose an antagonism between railway and public which had increased until a situation existed that was wholly inimical to the business and commercial interests of the people. In New York State the Hepburn Committee was created by the legislature to investigate the effect of railway cooperation upon the business interests of that commonwealth. Other evidences of public displeasure were apparent. However erroneous popular adherence to a competitive policy was, and however exaggerated by the public were the injuries suffered as a result of railway cooperation, it was sufficient that the public believed in, and political leaders preached, the need of the rigid enforcement of a competitive policy.

An influence of a temporary character, but one which was important, nevertheless, in furthering regulative action, was the depression which began in the early seventies and continued until the latter part of that decade, particularly in agricultural sections. With "times badly out of joint" for many, it was not strange that the railway, an apparently prosperous enterprise and controlled from a distance, should be the object of vicious attack. But the final impulse which made not only state action but also federal legislation inevitable was given in the middle eighties by the Wabash decision and the Cullom report. Upon the authority of an earlier decision the states had regulated not only intrastate movements but also, in the absence of Congressional action, interstate shipments. Such scope of action was denied them by the Wabash decision, with the result that an increasing portion of railway traffic remained unprotected by regulative action until Congress legislated. That real need for such federal action existed was shown beyond peradventure in the Cullom report, made by a Congressional committee of which Senator Cullom of Illinois was chairman. This report portrayed a situation with respect to discrimination

of various types and with respect to financial practices such as to justify—indeed, to make necessary—immediate and positive action by the Federal Government.

FEDERAL AND STATE REGULATORY ACTS

In response to the demand for federal action, there was placed upon the statute books in 1887 the so-called Interstate Commerce Act. In addition to providing that all rates should be just and reasonable, this Act forbade all personal and place discrimination and prohibited pooling. Publicity of rates and fares was required and a commission was provided with such powers as were essential to the proper administration and enforcement of the provisions of the Act. During the first few years after the law was placed on the statute books, much was accomplished in the rectification of abuses and wrongful practices and in the establishment of uniform rules, classifications, and rates, but by the close of this period the most important and vital features of the law were under careful scrutiny or had already been challenged by the subject carriers, with the result that early during the succeeding period the Act was so thoroughly emasculated as to amount to a repeal of all the really helpful provisions.

But despite the growing significance of interstate commerce, the Federal Government was not alone in its efforts to bring railway policies and practices under control during this period. Prior to 1880 such states as had taken positive action in the direction of the regulation of railways in the early seventies entirely repealed or greatly modified their regulatory acts, with the exception of Illinois, but the demand for action became so marked that, beginning again in the middle eighties, the movement toward state regulation reappeared. This movement continued with but a temporary lull after the sharp collapse of 1893 until, in the succeeding period, every state but one in the United States had established some type of railway control. On

the whole, it is doubtful if state regulatory measures during this period accomplished as much in proportion to the interests involved as did federal. Both state and federal regulatory activities prior to the close of this era were, however, only a prelude to the era of close and effective, though not wholly wise, regulation of the succeeding period.

INCREASE IN RAILWAY INVESTMENT

No discussion of this third period in railway development is complete without at least a brief presentation of significant characteristics and policies of carrier finance, both because of the immediate influence exerted by it upon general financial conditions and because of its relationship to railway development during the succeeding period. That the tremendous expansion of the railway net during these two decades should result in a marked increase in the total capitalization of the enterprise was natural. From a figure somewhat in excess of $3,000,000,000 in 1873, it had mounted to more than three times that sum in 1893, so it can be said, roughly, that, while mileage was increasing about 160%, the total of securities based upon that mileage increased about 200%. Since considerable sums were undoubtedly spent in improving older properties, this difference would not necessarily be of particular significance were it not that a considerable portion of the mileage added during the period was laid in a territory where construction costs were relatively low—the plains country—and also were it not for the added fact that a large portion of this mileage was laid to the tune of governmental and private aid. These facts make it appear that not only was the generosity of a public hoping to benefit immediately or ultimately from the construction of mileage capitalized liberally by the builders of these projects, but that perhaps those individuals went even beyond that point in their generosity to themselves—for it was characteristic of early railway construction that those "within the charmed circle" were

the gainers at the expense of even fellow stockholders who were not so fortunately placed.

OVERCAPITALIZATION AND ITS CAUSES

Without doubt the excessive capitalization of many properties built during this period is explained by the highly speculative character of the projects themselves. So great was the risk that those in financial control were compelled to sell even bonds at a heavy discount and it is in nowise strange that large amounts of stock were issued with little to give support except the hoped-for success of the enterprise. Indeed, it was not unusual for stock to be given as a bonus to aid in the promotion of bond sales, and the promoters of early enterprises in the West were never parsimonious in compensating themselves in stocks for the various services performed.

But the significance of the general upward movement of capitalization during this period and the high capitalization of particular properties as compared with actual investment is not to be explained always perhaps upon so natural and so innocent a basis. For this was a period which was characterized as no other in the history of railway construction and operation by fraudulent practices in the field of finance. The construction company, a relatively unknown instrument prior to this time for the tapping of railway treasuries, the Crédit Mobilier being the first outstanding instance of its use, might almost be said to have become a characteristic feature of building operations during the era of great expansion. These "inside organizations" were capable of contributing in a material and effective manner to the prosecution of the various projects with which they were connected, but so often were they created and utilized merely as vehicles for plundering those who actually contributed funds to make the proposed lines possible, that their whole record has become, from a public standpoint, an odious one.

But fraudulent practice played a part in the movement

toward excessive capitalization beyond, in point of time, the construction of the property. The complete absence of control over the issuance of corporate securities throughout this entire period made it invitingly easy for those of speculative tendencies who chanced to be in control of a railway to utilize that control to issue securities which enriched the controlling interest at the expense of the corporation thus burdened. And it may well be said further that the readiness with which the market, at home and abroad, absorbed railway issues during this period, but little regard being given to their fundamental character, presented a situation which not only tempted those in control to benefit themselves but served as an incentive to the Goulds, the Sages, and others deliberately to seek control of properties for quite other reasons than those associated with public service. And woe betide such properties in future years as fell into their grasp—more than one railway is today wearily bearing a burden of funded debt and of stocks that is explained on grounds varying from the capitalization of false and ungrounded hopes to the payment of expenses incident to current operation from the proceeds of bond sales.

Yet it is only fair to say that, however much student and public may reprobate the actions of those in control of railway properties almost a half-century ago, it must be remembered that in retrospect it is ever exceedingly easy to outline a sound policy. The then dominant *laissez-faire* philosophy supported a policy of non-interference. And it must be remembered, too, that the public itself was party to the speculative activities of this period, both actively and by passive consent. Indeed, to quote one writer, "it was only after the division of the spoils had been made, when each individual citizen had capitalized whatever advantage he had gained, when a large majority of persons residing within a given territory was required to produce in order to prosper . . . . when he no longer felt that he was being benefited by the practices which we now condemn, that there began to be a moral uprising against the corporation,

the officer, or the corporate trustee who, under the contracts which represented his share in the division of the spoils of territorial conquest, continued to profit under the system. . . . The new morality of today is the product of new economic and social conditions, which requires that the government become the effective agency representing general welfare, and that this agency be vigorously employed to guard the public against the exercises of the special privileges and private monopolies created under a régime of private spoliation of a new continent, the title to which rested in the general government. The promoter of the railroad of yesterday was the enterprising citizen; he was the man who, accepting conditions as they were, made the most of them; and whatever conclusion may be drawn with reference to his morality when measured by new standards, it must be said that he did much to organize the forces which have given to America the best equipped transportation service in the world." [1] It may be further said that the worst of financial practices in the railway field during the "golden age" for speculator and manipulator in nowise surpass similar practices of recent years in the industrial field, and the latter is now regarded as competitive and private in character not a whit less than was the railway field until relatively recent years.

CHANGES IN FINANCIAL POLICY

But beyond the difficulties to which this period gave rise because of the part speculation and fraud played in railway finance, it is of interest and importance because of a change in financial policy which took place. Early railway construction had been financed largely through the sale of stock, but the railways of the third period, indeed, even of the latter part of the second, were located in undeveloped territory and had to be financed, therefore, by outside capital.

[1] Cleveland and Powell, *Railroad Promotion and Capitalization*, pp. 147-148.

This capital demanded security and when the investor displaced, as a source of funds, the man who hoped to profit directly from the service rendered by the railway, bonds gained a position of increasing prominence. Ripley states that in 1855 the capital stock of American railways exceeded bonded indebtedness by 42% and even in 1868 the railways in Ohio had capital stock outstanding considerably in excess of the total of bonds. However, in the years immediately preceding the panic of 1873 a change came, due to the greater ease of marketing bonds, to the pioneer character of projects involved, and to the increased interest of the promoter in the railway enterprises, together with the endeavors of land-grant roads to secure funds upon the basis of the grants received. This change contributed in a measure to precipitating the panic mentioned; yet despite the temporary change in policy necessary to a reduction in fixed charges during the next few years, a higher bond ratio became a characteristic feature of the succeeding period. A gradual increase in the proportion of bonds took place prior to the panic of 1893 in which the collapse of railway properties again figured prominently as a contributing cause. Indeed, the failure of certain projects to meet expectations played so large a part in the minor collapse of 1884 that it has been called "the railroad panic," and the temporary halt in business in 1891 was largely due to railway financial difficulties. Just as it would be difficult to magnify the importance of the collapses in general business in '73, '84, and '93, with their following years of depression, particularly the first and last named, so would it be difficult to magnify the part played by the building of excessive mileage and by unwise or fraudulent railway financial practices in precipitating such general failures.

IMPORTANCE OF THIS PERIOD IN RAILWAY HISTORY

On the whole, this third period is, of them all, perhaps the most striking in its individual characteristics and the

most significant, since it clearly gave rise to evils which influenced development during the later period in a more profound way than any other in American railway history. The addition of mileage and the development of transcontinental service was phenomenal, and the reversal of a policy of generous aid to railway construction was striking. Unwise building and improper financing during these years lie at the bottom of much of the difficulty of the succeeding period, and the issue which was clearly joined between railway and public during the 20 years was destined to bring in its wake a complete system of regulation. This, conceived in antagonism and born of an ignorance of railway fundamentals, was bound to give punitive rather than constructive control of our railways. Indeed, an understanding can be gained of the great majority of the problems and difficulties which arise in the next period, only through a careful study of this, the crucial period in the growth of a vital transportation agency.

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VII

DEVELOPMENT OF THE RAILWAY PROBLEM

Factors influencing railway development. General character of mileage development, 1894-1919. Extensive growth prior to 1908. The problem of railway credit. Need of railway expansion. Progressive decline in railway growth. Decline as reflected in railway capitalization. Causes of failure of railway credit. Decline in net operating income an important cause. Influence of the uncertainty concerning governmental policy. Appearance of large ownership groupings. Methods employed to federate railways. Results of federation. Perfection of regulation. Regulation by the Federal Government. Federal legislative enactments. Important judicial decisions. Extent and scope of state regulation. Results of railway regulation.

THE fourth period in the progress of the American railway net is marked in a peculiar degree by events which were essentially the results of conditions that developed during preceding periods. The panic of 1893 closed one period and introduced another. This event left a striking impress upon the course of railway growth and organization, particularly in the years immediately following. The rapid construction of mileage which featured the decade and a half prior to this financial debacle, gave place to meager building and never again reached its former magnitude. This panic also caused the financial collapse of a considerable fraction of our railway mileage and compelled the numerous and drastic reorganizations that featured the years from 1894 to about 1897. These reorganizations and the need of assistance and continued support from important financial interests gave a splendid opportunity for the formation of the large ownership groupings of railways so characteristic of the period. Another feature of this period which exerted a strong influence upon railway development was the rapid industrialization which took place in the years following recovery from the depression of the middle nineties. As 1894 begins this final period, so does 1919 mark

its close. Federal operation, which had continued for more than two years, ended early in 1920 with the return of all properties to private management. But of greater importance is the fact that this change to private control was made subject to legislation which constituted a distinct departure from the regulatory policy characteristic of both state and federal control during nearly two decades preceding. The year 1920 opened a new era in the relationship of carrier and public.

FACTORS INFLUENCING DEVELOPMENT

During this period several factors exerted an important influence upon railway development. Among these perhaps none was more important, either in its direct or indirect influence, than the tremendous industrial growth in the years following recovery from the panic of 1893. Although industrial development had progressed during the previous period with great rapidity, its growth was now as spectacular as had been that of the railways during the score of years preceding 1893. The direct result of this industrial development was a tremendously increased demand for service; not only was the quantity of tonnage offered greater but need for a higher character of service appeared. This growing demand for service early taxed the capacity of the carriers in more highly developed territory so that they were no longer able to serve at maximum efficiency. In consequence, certain of the more important carriers, and particularly those in the Eastern district, have for some years past failed to enjoy the benefit of increasing returns; inability to expand with the increase in traffic has made additional traffic a penalty instead, since these properties are now compelled to operate upon the basis of increasing cost. That these railways and others which found themselves sorely in need of increasing plant capacity were unable to expand with the growth of traffic is ascribable in part to this very industrial development which threw upon them

the greater burden. Such development, with its promise of a more generous reward to the investor than the railways could offer, absorbed large amounts of capital that would otherwise have been available for railway use.

A second important influence which operated throughout the major portion of this period was a rising price level. The upward movement began with the recovery from the depression of the middle nineties and continued, with but minor recessions, until the peak was reached early in 1920. This increase in prices affected the railways perhaps more adversely than any other type of enterprise because, in the face of rising costs of operation, rates remained almost stationary until the latter portion of the period when the financial need of the carriers made itself so sharply felt that rectification could no longer be postponed. This relaxation in the parsimonious policies of regulative bodies, particularly state commissions, came too late, however, to prove of material assistance in remedying during this period the ills which were so largely the result of long years of error.

A third feature that influenced the railways during these years was the general movement toward "big business" which was particularly pronounced in the decade that closed with 1907. The advantages accruing from combination loomed large in the public eye and belief that certain of these advantages might be enjoyed in the railway field is indicated by public approval, or acceptance, of the large ownership groupings as well as the consolidation of lesser properties into large systems. Had not this movement encountered legal barriers there is little doubt but that, at the close of the period, the railways of the country would have been consolidated into a relatively small number of great systems, each occupying a semi-monopolistic or monopolistic position in the territory served by it.

A fourth factor of great significance during the later years of this period was the European war. Even before the United States entered the conflict the influence of that great

struggle upon finances and upon operations had made itself felt. Not alone did America find it impossible to enlist the aid of European capital in either intensive or extensive programs of expansion; the American investor was forced to absorb enormous quantities of railway paper which had previously been held abroad. Railway operation was also affected. The large tonnage resulting from war orders by European combatants increased the demand for service upon the railways and a peculiar traffic situation developed: the dominant eastward movement of loaded cars, together with the congestion resulting from the dislocation of ocean commerce, cast a burden upon the carriers which was increasingly difficult to carry prior to the time of America's entry into the struggle. The further demand for service, which resulted from active participation in the war, created a situation to which the most logical answer was federal control. This temporary but radical departure from the operating policies of the past came as the immediate result, therefore, of the war. However, as will be indicated later, other factors contributed more importantly to the condition which brought forth the presidential proclamation late in 1917, authorizing government operation as a war measure.

MILEAGE DEVELOPMENT, 1894-1919

The period which ended in 1893 was marked by a spectacular increase in mileage which grew progressively until peak construction was reached in the late eighties; this period now under consideration was characterized by construction which reached a peak in 1906, about the middle of the period, only to decline progressively from that time forward until, during the last few years, an actual shrinkage in the total occurred. From approximately 177,500 miles of railways at the close of 1893, the mileage of the United States increased to 253,152 at the close of 1919, an addition of more than 75,500 miles. The maximum mileage shown, however, is that of June 30, 1916, which stood at 254,251.

The distribution of this total mileage increase, which averages about 2,900 miles per year for the entire period, is interesting when examined year by year. As might be expected, development was slow immediately following the panic of 1893, the average for the first 5 years being somewhat less than 2,000 miles annually. Beginning in 1899, however, construction went forward more rapidly, the number of miles gradually increasing until the high point of the period was reached in 1906. In that year 6,262 miles of line were added. In the decade following 1906 a progressive decline characterized building, until, in 1917, for the first time in American railway history, more miles of railway were abandoned than constructed, the net decrease for that year being 625 miles. A decrease also marked each of the two succeeding years which closed the period, the approximate net loss for three years being 1,100 miles. The gradual decline in construction during the later years of this period is perhaps best indicated by certain summary figures. During the first 10 years following 1893 there were built, despite adverse financial conditions, about 34,000 miles of line, while in 10 years closing with 1919 but 17,000 miles were added; of the total mileage increase of approximately 75,650 for the entire period, about 57,000 were laid down during the first 15 years. That a large part of this extensive development should lie in the West was but natural since it was that section which was least well served by railways and offered greatest immediate opportunities for development. Development in the South, however, was much more pronounced than in the East, but here again the explanation lies in a lesser extensive railway development there during earlier years.

EXTENSIVE GROWTH PRIOR TO 1908

From the standpoint of mileage development an examination of construction figures justifies the treatment of this period in two parts, the years closing with 1907 and

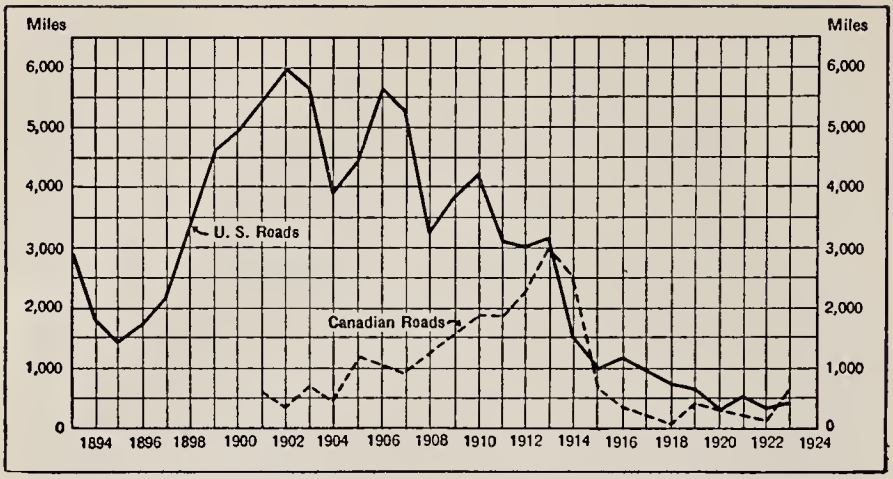


Figure 5: Mileage constructed in the United States and Canada since 1893

those beginning the next year. Prior to 1908, building progressed in a normal manner. During these years many projects which had been undertaken during the preceding period were carried to completion, and likewise many older properties discovered the value of certain additional connections and, in consequence, built mileage not in contemplation when the work had been undertaken. Although certain new projects appeared, these were of a minor character and their existence was often due to the encouragement given their promoters by older and well-established lines. Among the forces which lay back of construction at this stage, one of the more important was the desire to round out an existing property and to establish claim to new areas through the construction of branch mileage or by construction which tended to envelop certain areas and thus discourage competitive building. Another influence was the rapid industrial progress which characterized this era, with the consequent demand for additional mileage to make possible the development of new areas and the expansion of industrial activities in old. The westward movement of population, so conspicuous during the previous period, continued particularly through the early part of this. And that movement, despite

overconstruction in the less developed sections prior to 1893, called for the addition of certain mileage necessary to the development of poorly supplied districts.

Making possible in part this steady development during the first part of the period under consideration was the continued support of foreign capital which was available, though in perhaps diminishing degree, for both industrial and railway enterprises in the years intervening between the recovery from the panic of 1893 and that stagnation which was so peculiarly characteristic of the railway industry after 1907. On the whole, the first half of the fourth period in the growth of our railways may be regarded from a construction standpoint as normal, with a complete absence of that phenomenally extensive development which so featured the score of years ending in 1893. However, this decline in construction from unusual to normal was inevitable; indeed, it was to be welcomed. Extensive growth had progressed to the point of near-saturation and, with the stabilization of the industry, those speculative opportunities offered the promoter by pioneer enterprises had largely disappeared.

MILEAGE DEVELOPMENT AFTER 1907

Mileage development in the United States after 1907 has been, compared with that during an equal time for 40 years preceding, of negligible importance, and the actual mileage deficit during late years is in startling contrast to the situation which obtained during the more than three-quarters of a century of railway building preceding. The minor construction of these years was mainly of two types, the expansion of larger properties in less developed areas, West and South, and the closer gridironing of certain older sections in the interest of intensive development. No new systems of any consequence appeared; nominally independent lines, as the Western Pacific, represented merely an effort on the part of older properties to accomplish through

subsidiary corporations certain strategic ends. Stagnation in the railway field presents a curious situation in a relatively new and rapidly developing industrial nation and a situation which cannot long persist in a progressive country except with disastrous results to carriers and to public alike. It is one which demands careful analysis.

The mileage deficit which appeared during the closing years of the period is not difficult to explain and the explanation introduces no dangerous factor. Indeed, one phrase, the war, both explains and justifies a policy of curtailing new projects, while the abnormal situation arising out of war conditions might reasonably be expected to plunge weaker properties into financial difficulties so serious as to force the cessation of operation, even the complete abandonment of mileage. Emphasis upon winning the war and the complete marshalling of all resources to that end left but little capital free for railway expansion not essential to war purposes. Then, too, during the period of federal control railway executives associated with either operating or corporate interests had slight reason to plan or urge extensions.

The explanation of road abandonment is somewhat more involved, however. The disturbance of long-standing relationships of revenues and expenses was so great that the operation of many minor properties, whose solvency had been maintained for many years with greatest difficulty, could be continued no longer. The tremendous upward movement of operating expenses, both wages and materials, in the face of stationary or slowly advancing rate levels, ground these properties as between the upper and nether millstones. That a greater mileage was not abandoned was due to the courageous work of the sponsors of many of these weaker properties, together with intelligent cooperation on the part of the public in lightening burdens and increasing revenues. However, the end of abandonment has not yet been reached, abandonment which is directly attributable to maladjustments growing out of war condi-

tions. It should in fairness be added that the war, a universal scapegoat, was but an immediate cause; more fundamental reasons underlie such a collapse.

THE PROBLEM OF RAILWAY CREDIT

Nevertheless, it is quite clear that the European War influenced the extensive development of our railway net even prior to our entry into the struggle. Indeed, had it not been for certain consequences of the European struggle from 1914 onward, it is doubtful if the rate of decline would have approached so rapidly that deficit construction first attained in 1917. Financial conditions in the United States were none too sound when the war first opened and in consequence capital was difficult to obtain at home. The outbreak in Europe, which involved immediately practically all countries from which capital had been drawn into the American railway industry, not only made it impracticable to secure further funds for that purpose there, but the desire of Europeans to obtain gold forced American investors to absorb enormous holdings which otherwise would have remained abroad. The necessity of absorbing these foreign holdings and the unusual opportunity which the American investor enjoyed at home made the flotation of additional railway securities upon reasonable terms well nigh impossible; the tremendous stimulation of industrial activities incident to meeting war demands and a "seller's market" meant huge earnings in many fields, handsome gains in practically all. Such spectacular gains, when compared with the investment return in the railway field, inevitably crowded carrier securities, already weak, quite into the background.

The explanation of the readiness with which railway securities, known to the financial public for years, gave way to industrials, many of which were new and untried, involves an analysis of the status of railway securities at the outbreak of hostilities and during the early war years. Such an analysis calls for a complete examination of the credit

situation of the railway; it is evident that the once popular "railways" could not have occupied a position such as they did at this time except through a gradual but certain weakening of their credit fiber. The fundamental explanation of the cessation in railway development seems to lie, therefore, in the gradual failure of credit rather than in any peculiar and unusual situation such as war conditions.

To gain an understanding of the extent to which railway credit has failed, particularly during the latter part of this period, it is desirable to determine first the extent of the financial needs of our railways and then to compare with those needs the degree in which it has been possible to meet them.

THE NEED OF RAILWAY EXPANSION

The continuous expansion of railway properties is fundamentally essential to the public if service is to be maintained even at former levels, and to the railways if overtaxed facilities and operation under conditions of increasing

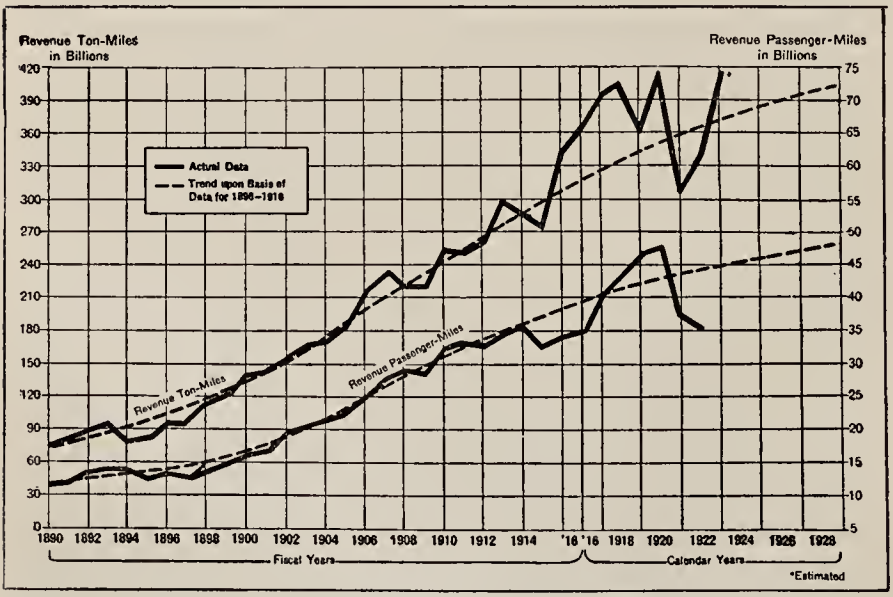


Figure 7: Revenue ton-miles and revenue passenger miles of steam railways in the United States, 1890-1922

cost, are to be avoided. For the railway it is also essential to keep facilities abreast of needs that public antagonism, grounded upon an inadequate service, may be avoided. The best guide as to what this rate of expansion should be seems to be the actual rate at which the demand for service has grown. In the case of freight traffic, experience indicates that tonnage tends to double approximately every 12 years while the volume of passenger business doubles in approximately 15 years. To assume that the capacity of the railway plant, considered both extensively and intensively, must double within each such period or prove inadequate, is an error since many lines, large and small, operating in Southern and Western territory, have not as yet reached, by a considerable margin, the maximum efficient capacity of the plant to serve. Nevertheless, if expansion falls below an approximate 8% per annum for any extended period of time, the industrial and commercial life of the country must suffer the crippling effects of progressively inadequate facilities.

The most obvious type of expansion, though perhaps at the present time the least important, is that of line mileage. So thoroughly were the more productive areas gridironed during the period of linear growth that the saturation point in that particular has been reached in many large sections. A second type of expansion, however, which may be regarded as intensive rather than extensive, has increased in importance as the other has declined. Intensive development takes various forms. It involves, in part, the construction of multiple trackage; in part the addition of switching facilities, both yards and sidings; in part, equipment—locomotives and cars, both passenger and freight. That the actual rate of expansion of the railways, both intensively and extensively, has fallen far short of the indicated traffic needs of the country, not only within recent years, but for many years past, is shown clearly by an examination of statistics which show the extent of progress along each line.

PROGRESSIVE DECLINE IN RAILWAY GROWTH

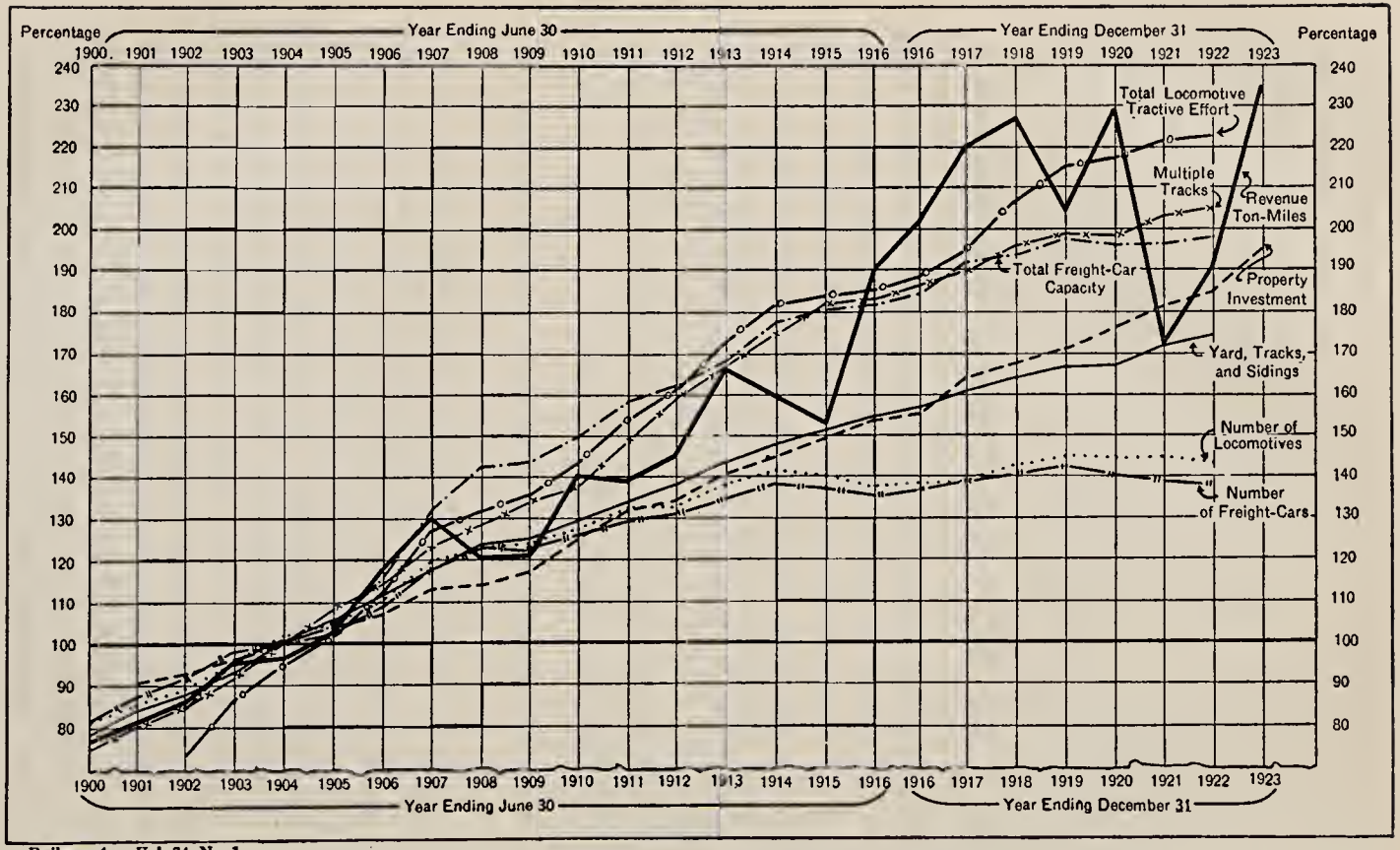
Attention has already been directed to the declining rate of expansion in railway mileage, but perhaps that condition may be better realized when the percentage rate of increase from period to period is given. In the 5½ years prior to the close of the fourth period in 1919, the total increase in line mileage was but .07%; during the preceding 5-year period the total percentage of expansion was 10.4%, with a percentage of 11.6% for the period from 1905 to 1909 inclusive. From these figures it is clearly evident that the extensive development of the railway plant has, in no sense, kept pace with traffic growth. However, it is of greater significance that the railway plant has failed to keep pace with industrial needs by intensive development. This failure is evident in every phase of intensive growth. Although from 1905 to 1909 multiple trackage increased by something less than 7% per year and from 1910 to 1914 by almost 6.5%, even those figures fall short of the traffic base and an increase of less than 13% for the last 5½ years of the period, an average of less than 2.5% a year, gives clear proof of inadequacy. The same conclusion holds true for switching facilities. During the first 5-year period this item increased at the rate of about 5% a year, during the second period, of approximately 4% per year, but during the last period mentioned it grew by less than 1% per year. And if increase at any point is essential to the avoidance of congestion and consequent delays, it is in the case of switching facilities; yards and sidings, particularly in terminals and important centers, represent the "neck of the bottle" in the handling of business.

In the provision of additional equipment the railways of the United States have failed to meet growing traffic demands as signally, on the whole, as in the case of mileage and trackage. From 1905 to 1909 inclusive, the number of locomotives in service increased by less than 4.5% annually, while during the succeeding 5 years the annual

increase dropped to less than 3%. For the remaining 5½ years, closing with 1919, the annual rate of increase was but little more than 1%. This same decline is evident, though not to the same degree, happily, when measured in terms of locomotive tractive capacity, the annual averages for the three periods mentioned being 8.5%, 5.6%, and 4%, approximately. In the matter of freight-cars in service, the percentages run closely parallel to those of the number of locomotives, though the increase in tonnage capacity of freight equipment has diminished more rapidly, those figures being, for the three periods discussed, approximately 9%, 5%, and 1.4%. An examination of the rate of increase in passenger equipment shows an even less favorable situation when stated in percentages, though perhaps this condition is the least serious of those discussed because maximum utilization has been far from attained by the railways from passenger equipment. In the 5 years beginning with 1905, the annual rate of increase of such equipment in service was less than 3%, for the next 5-year period approximately 3.5%, but for the period closing with 1919 an annual rate of growth of less than 1% is shown.

DECLINE REFLECTED BY RAILWAY CAPITALIZATION

From the foregoing facts it is clear that, even though considerable "slack" in the capacity of American railways to serve had existed as a result of overexpansion, extensive and intensive, during earlier years, the railway plant now lags behind traffic growth. It cannot be regarded as abreast of present-day needs. As further evidence of this failure to meet the growing traffic needs of the United States the movement of railway capitalization during the past 15 years may be cited. It is impossible to secure the net amount of railway securities outstanding and not held by railway companies prior to 1910, but a comparison of the total amounts outstanding at the beginning and at the close of the 5-year periods 1905-1909 and 1910-1914, together


Percentage
Year Ending June 30
Year Ending December 31
Percentage
1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1916 1917 1918 1919 1920 1921 1922 1923
240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80
Total Locomotive Tractive Effort
Multiple Tracks
Revenue Ton-Miles
Total Freight-Car Capacity
Property Investment
Yard, Tracks, and Sidings
Number of Locomotives
Number of Freight-Cars
Year Ending June 30
Year Ending December 31

Railway Age, Vol. 74, No. 1.

Figure 8: Percentage relationship of railway traffic and railway facilities, on an annual average of 1902 to 1906, inclusive, as a base of 100

with a comparison of the net amount outstanding at the beginning and at the close of the period 1915-1919 is significant. During the first 5-year period in question, total outstanding securities increased by almost $4,275,000,000, an average of almost 6.5% per annum, but during the next 5-year period the increase was little more than $2,760,000,000, or slightly above 3%, showing thus a decline in the rate of increase to slightly less than one-half for the second period. And the third period shows an increase in the net outstanding of slightly less than $316,000,000, an almost negligible .3% annually. An analysis of the comparatively satisfactory situation during the first 5-year period for which data are given shows that bonds increased at almost double the rate of stock. This fact is doubly significant: it indicates the growing difficulty experienced by the carriers in marketing stock because of its secondary claim to inadequate revenues, and shows a willingness to market bonds when existing issues were already pressing the margin of safety all too closely. Although during the last 5-year period the bond total diminished slightly and outstanding stock increased by 4%, practically the entire increase in the latter came during the first 2 years of the period; after that time there was no market for railway stock. These facts alone show the precarious condition of railway credit, for no enterprise can long remain upon a sound basis when forced to depend wholly or even largely upon the issuance of bonds for the funds requisite to expansion.

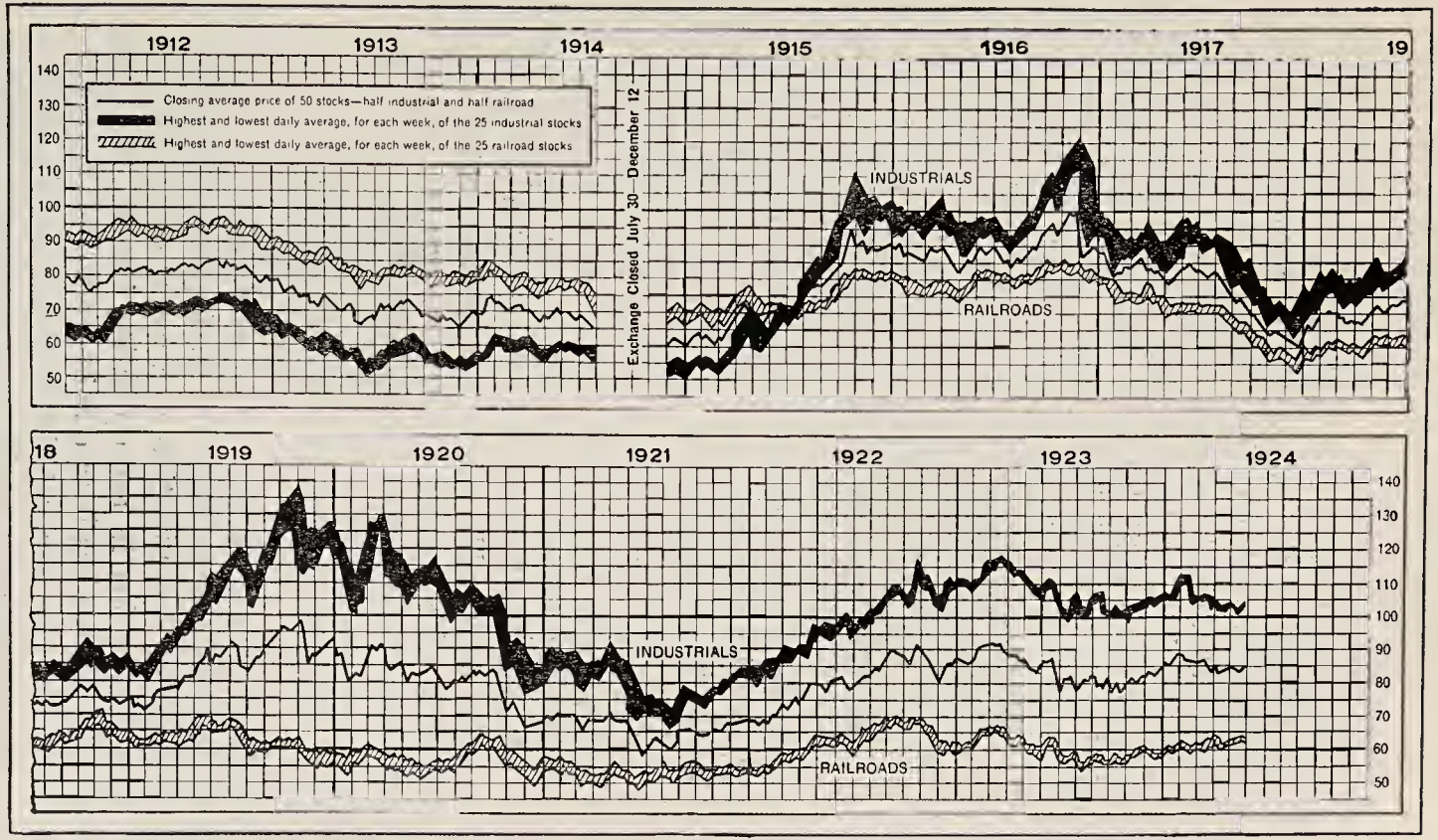
REASONS FOR DECLINE IN RAILWAY CREDIT

The reasons for this decline in railway credit are too numerous and too involved to permit of a complete portrayal here. A brief sketch, however, of some of the more important causes is desirable. Among these causes, one of the more important was the loss of confidence in railway securities by the investment public because of numerous past failures as well as the threat so generally made to "squeeze

the water" out of the railway issues. Two outstanding causes for the failure of American railways appear, of which the more significant is overconstruction. One of the penalties which the American public has paid for the early appearance of railway mileage in sections not yet justifying, economically, such construction, has been the financial collapse and reorganization of practically all properties so built. Another cause of failure and one which, because of its nature, has been advertised beyond its actual importance in the field, is fraudulent financial management. Such management brought disaster not only because it often plunged the property into immediate bankruptcy, but also because it weakened the financial structure and thus made the property susceptible to financial ills to which it otherwise might have been immune. But despite the influence which failure and reorganization had upon the standing of railway securities in years past, perhaps the constantly and emphatically voiced insistence upon lowering capitalization was even more disquieting. This, with no valuation data to reassure prospective investors, inevitably deflected capital from the railway to other and less scrutinized fields.

A second cause for the decline of railway securities in the market and one applying more particularly to stocks of a somewhat speculative character, was the disappearance in large measure of speculative opportunities in the railway field since about 1905. Both because of rising standards of financial morality and because of legal restrictions imposed, gains through financial operations incident to construction or to consolidation had been minimized or eliminated. The regulation of rates and services had, in similar manner, removed practically all opportunity of speculative gains accruing from the operation of the more favorably situated properties. Then, too, with the aging and solidification of the railway industry, the opportunities for unusual gains gradually disappeared.

A third factor which tended to weaken progressively the position of railway securities in the financial market was



The Annalist

Figure 9: Range of average monthly high and low prices of industrial and railroad stocks on the New York Stock Exchange, January, 1912 to June, 1924

the rise of rival investments. These were of two types, the more important being the "industrials" which first attained prominence in the early years of recovery from the depression of the middle nineties. Prior to that time "rails" had occupied an almost exclusive position in the large security markets but, as time passed, "industrials" gained increasing attention until, by 1906, they had overshadowed the "rails" in the eyes of the investor. This rapid rise was due essentially to the absence of regulation; the legal position of such enterprises was such that a closer correlation of risk and profit existed than it was possible to secure under a parsimonious policy of control in a field "burdened with public interest" as is railway enterprise. But not only did railway securities have to compete with industrial issues which offered to those of speculative leanings a high return and to those desiring investment paper a comparative degree of safety, but also with great quantities of tax-exempt bonds issued by the minor governmental units, township, city, village, and even school districts. These governmental issues offered a degree of safety comparable in most cases to that of the best railway bonds, yet paid a rate often distinctly in excess of that offered by railways upon equally sound issues. Caught thus between industrials which offered high returns with measurable safety and governmentals which offered safety with a relatively high return, the plight of railroad issues became increasingly difficult.

DECLINE IN NET OPERATING INCOME

Intimately related to this growing disfavor with which railway securities were regarded in financial markets—in fact, underlying that situation as a major causative factor, has been the decline in net operating income of the railways. This decline has been due in part to a rapid increase in expenses, in part to a rate level which has remained stationary during a long upward price movement. Beginning in the late nineties, the railways found themselves obliged

to pay progressively higher prices for everything they used—capital, materials, and labor, and this upward movement was quickened during the latter part of the period by war conditions. Another explanation of the increase in expenses appears in the situation of certain properties in more highly developed areas; the plant was asked to render service beyond maximum efficient capacity. Indeed, as early as 1906 it appears that the law of increasing cost had begun to operate in the Eastern district and by 1919 this condition was the rule rather than the exception among the more important properties in that territory. Then, finally, expenses had been augmented gradually but surely as the result of growing public requirements. Not only did taxes assessed against railway properties increase out of all proportion to the change in the ability of the railways to bear such burdens, but demands and restrictions imposed upon the railways with respect to the physical plant and its operations involved considerable expense also. Certain of

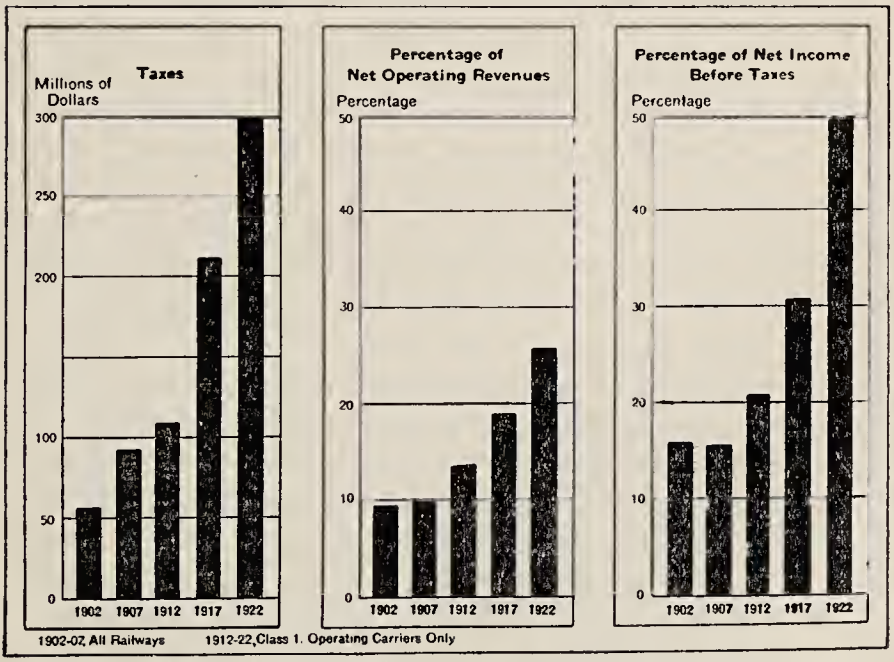


Figure 10: Absolute and relative increase in railway taxes

these demands and requirements were entirely sound in character and justified—the separation of grade crossings, safety devices, and even more adequate terminal facilities. But, on the other hand, the requirement of stations beyond need of particular communities, interference with operations through such statutes as "full crew" and maximum train length laws, represented merely needless expense to the railways.

In the face of this increase in expense, rates failed to advance in proportion, if at all. The explanation of this stationary rate level is somewhat involved, but without doubt it resulted largely from the popular hostility of the period to the railways and the influence of that hostility upon commissions, state and federal. This situation was aggravated by the almost complete lack of authentic data upon the true value of properties devoted to the public service, which fact made it impossible to determine whether or not a reasonable return was being earned. Even as to the nature of this reasonable return there was distinct uncertainty. Commissions and courts alike often confused it with that minimum rate of return which just escapes the constitutional prohibition against confiscation and, in consequence, rates were too frequently adjusted to yield a return that would barely maintain the existing plant, rather than one that made the railway field sufficiently attractive to capital to bring into it those sums necessary for expansion from time to time. And last, but by no means least as an explanation of stationary rates throughout this period, was the transfer of the burden of proof to the railways in rate increase cases. Because of the inadequacy of their data covering property values and operating costs, the railways found it impossible to establish clearly a case for higher rates and their situation became increasingly more difficult. In consequence of this diminution in net operating income, the amount available for payment of interest and dividends, instead of increasing with considerable regularity as it did from the beginning of this period until 1910-1914, dropped off after

that time. This downward trend of incomes lessened the margin of safety upon bonds and caused the average rate of dividends declared upon all stocks, which reached its maximum in 1911, to decline from that time to the close of the period.

UNCERTAINTY OF GOVERNMENTAL POLICY

Perhaps a final factor contributing to the decline of railway credit was the uncertainty which has existed for more than a decade as to probable future relationship between railways and government. Among certain groups there has been a growing sense of the failure of regulation, as it has existed, to accomplish satisfactorily its public purpose and, with this sense of failure, there has developed an attitude which might be termed fatalistic or perhaps even helpless. Neither among those high in position in public service nor among those who shape railway policy, has there been the insight or the vision to devise a constructive solution of the problem. Added to this doubt as to the ultimate success of regulation on the part of those who had favored such a policy in the past, has been a growing demand on the part of certain radical groups for government ownership and operation of the railways of the United States. With so much uncertainty with respect to the ultimate relationship of railway and government best suited to serve public interest, it is not strange that private capital hesitates to enter the field.

In summarizing, it can be said with assurance that the failure of the railways to expand extensively and intensively sufficiently to meet increasing traffic demands, has been due in no sense to the unwillingness of those carriers to enlarge the plant. Rather, it is the consequence of weakened credit, a result in part of certain unusual conditions but in greater measure of unsound policies on the part of both railway and public, many of which date back to the last quarter of the nineteenth century. But whatever the explanation, the

necessity of the situation is obvious: either the needed expansion of the railway net must be made possible under private ownership and operation through the adoption of a constructive policy or the failure of that plant to expand will so restrict commerce and industry as to make government ownership and operation inevitable. The public will be content with nothing less than adequate service.

APPEARANCE OF LARGE OWNERSHIP GROUPINGS

A third conspicuous characteristic of this fourth period in American railway history was the further expansion of large systems and particularly the appearance of large ownership groupings. Although linear consolidation had brought certain large properties into being prior to 1873, and although the construction of railways into new areas had given birth to certain other large properties during the succeeding period, it was not until after 1893 that "big business," familiar to the public in the field of industry and commerce, appeared in the railway field. This consolidation of carriers was but a phase of the general movement toward consolidation which so characterized all business enterprise in those years lying between recovery from the depression after the panic of 1893 and prior to the panic of 1907. It was felt that the economies of large-scale production might be realized in the field of transportation as well as in others. This movement was further promoted, however, by the desire of the railways to escape the legal restrictions which had been imposed upon cooperative action. Not only had states forbidden pooling and other forms of association regarded by the railways as necessary to the elimination of injurious competition, but the anti-pooling clause of the Federal Act to Regulate Commerce in 1887 banned the pooling of interstate business, and the application of the Sherman Act to the railways in the Trans-Missouri Freight Association case of 1897 illegalized rate agreements. In view of these facts it is not strange that the

railways sought to strengthen their position by the federation of properties to such an extent as was possible within the law.

METHODS AND GAINS OF FEDERATION

This federation of properties took two major forms, of which the simpler and more effective was the actual unification of railways through amalgamation or merger. But this method could be employed on a broad scale only by non-competitive lines, as in the case of the Southern Railway, which is the result of the consolidation of lines serving all important points in the South. The federation of properties, however, more often took a somewhat less final form and represented more or less intimate cooperation rather than actual unification. In some instances cooperation was attempted through a holding company, the control of both competitive and non-competitive properties being vested in that agency. The decision in the Northern Securities case in 1904, however, eliminated the holding company as a means of securing cooperation among competitive properties, but it was often used to link connecting properties together, conspicuous instances being the Rock Island System and the Atlantic Coast Line. Another means of bringing about effective cooperation was through stock ownership. This method was employed to "harmonize" both competitive and non-competitive lines throughout the major part of the entire period, control sometimes arising out of the ownership by one railway of stock in another, sometimes out of the common ownership by individuals of large security holdings in those lines which it was desired to coordinate. Here again legal difficulties were finally encountered by railways which sought to exercise control over competitive lines, as shown by the Union Pacific–Southern Pacific decision. Yet the coordination of properties through individual holdings, which characterized the Great Northern–Northern Pacific System, seemed to escape the ban. A

third means of coordinating properties appears in that relationship which has been variously termed community of interest and the interlocking directorate. This plan, although representing an exceedingly loose type of cooperation, proved not only effective with competitive properties but useful in the case of supplementary lines as well. It also enjoyed the important advantage of escaping, in the case of competitive properties, the legal prohibitions which lay upon unification or coordination through either the holding company or railway stock ownership. This plan was widely used by the railways of the United States but was peculiarly serviceable in Eastern territory where the threat of competition always hung heavy.

That definite gains to the railways resulted from the formation of large systems of ownership groupings during this period is undoubted, although they are impossible of measurement. Certain it was that in no section of the United States throughout this entire fourth period was there an outbreak of such rate or service wars as characterized the period preceding. True, other stabilizing factors must be credited in part for this situation, but centralization of control contributed largely to the desired end. Economies of operation resulted also from this movement toward consolidation, such savings increasing in direct proportion to the degree that properties were unified in a physical as well as an ownership sense. Although competition is still regarded by the American public as a desirable feature of a railway policy, it is undoubtedly true that, within certain limits, unified control is advantageous. A final gain resulting from this movement toward consolidation lay in the stronger financial support which large and well-articulated properties were able to obtain. Indeed, many of the groupings which took place were made possible by the support of certain large banking interests and later received from those groups such financial assistance as enabled them to bridge over, without collapse, otherwise almost inevitable periods of distress during the years from

the late nineties to the inception of federal control. Had it not been for the legal barriers erected by state and federal governments, it is quite probable that the movement toward consolidation, particularly in the years from the late nineties to the outbreak of the European war in 1914, would have witnessed the grouping of the railways of the United States into that relatively small number of systems which the Esch-Cummins Act contemplates, though it is not certain that these systems would have developed in consonance with public interest except as constructive cooperation might have been offered by state and federal regulative bodies.

PERFECTION OF REGULATION: FEDERAL ACTION

Yet another, and perhaps the most conspicuous, feature of the period from 1893 to the close of 1919 was the development and perfection of restrictive railway regulation. Although steps had been taken during the preceding period by certain of the states and by the Federal Government, little of an effective character had been accomplished. As the early years of railway development are characterized as experimental in nature, so may those first efforts to bring the railways under governmental control be similarly regarded. Indeed, it may well be said that those were years of testing and winnowing, with the result that legislative bodies, both state and federal, discovered at least how laws should *not* be phrased if effective results were to be had. Since great forward strides were made in the regulation of both intrastate and interstate commerce, it is perhaps desirable to treat the two phases of the movement separately.

Although the beginning of effective state regulation on a broad scale antedated, somewhat, positive action on the part of the Federal Government, the increasing significance of the latter would seem to justify its being given the more important place. Following the effective emasculation of the Act of 1887 by the courts, the demand of the public for further legislation looking toward positive control was

not sufficiently strong to secure a hearing from Congress for some years, so responsive was that body to corporate influence. In fact, the first step taken toward the resuscitation of federal regulation was made at the behest of the railways themselves and dealt with rebating. Personal discrimination, a favorite weapon of the railways during sharply competitive periods, had become to them a monster of fearful mien, threatening seriously their revenues. Unable to bring this Frankenstein under control, appeal was made to Congress and in response the Elkins Act of 1903 was passed in most expeditious fashion. This Act dealt with the problem of rebating alone, amending the law in such manner as to make both giver and recipient liable, but removing the imprisonment feature of the Act of 1887 in the hope that juries would be the more ready to convict.

The Elkins Act accomplished its narrow purpose in some measure, but its utter inadequacy from a public standpoint was patent. Soon President Roosevelt designated railroad regulation as a "paramount issue," and during the next three years agitation for legislation of broad scope and of public purpose was actively carried on. In 1906 a happy combination of circumstances made possible the passage of the Hepburn Act. Although containing numerous provisions, four are of particular importance. The scope of the Act was broadened to include other transportation agencies against which protests had arisen: pipe-lines and private car, Pullman, and express companies were subjected to the control of the Interstate Commerce Commission. That there could be no doubt as to the intent of Congress concerning the extent of the powers of the Commission in the determination of rates, its right to fix maximum rates was stated in clear and unmistakable form. The Commission was also given the power to prescribe a uniform system of accounting for all railways subject to its control. Finally, the giving of free transportation, against which such emphatic protest had arisen, both because of its discriminatory character and because of its relationship to railway control

of the various branches of government, was restricted within very narrow and definitely prescribed boundaries. Upon the basis of these and other powers conferred by the Act, the Commission, instead of serving little more than a decorative purpose as it was compelled to do, perforce, for almost a decade, became a powerful agency. Appeals to it increased with striking rapidity and, in response to these appeals, the Commission remedied many abuses, particularly with respect to excessive and discriminatory rates. A preliminary system of accounting, later amplified, was also prescribed. The Hepburn Act represents the first positive step toward the effective federal regulation of railways.

The second step of significance was the passage of the Mann-Elkins Act by Congress in 1910. Included in this Act were again, among other matters, four provisions of major significance. The first of these was bestowal upon the Commission of the power to suspend for a possible total period of 10 months, pending investigation by that body, proposed rate increases filed by the carriers. Provision was made for the organization of a so-called Commerce Court, a specialized body which it was hoped would be able to give to appeals made from decisions of the Commission both early and expert consideration. Although it was assumed by many that the power given the Commission in the Hepburn Act to fix maximum rates implied control over the classification of goods, it was felt best to leave no uncertainty relative to this matter; in consequence the Mann-Elkins Act definitely gave to the Commission control over the classification of all commodities listed for shipment. The fourth and perhaps, in view of its later use, the most important feature of this Act, was the amendment of the Long-and-Short-Haul clause of the Act of 1887 in such manner as to preclude definitely any judicial interference of such a character as had, to all practical purposes, voided the effort of Congress in Section 4 of the Act of 1887 to subject this type of discrimination to governmental control. By striking out the phrase "under substantially similar cir-

cumstances and conditions" and leaving it to the judgment of the Commission as to whether exceptions should be made, Congress again showed its ability to capitalize past experience with judicial interpretation.

Despite the fact that the legislation of 1910 left little unaccomplished which was necessary to establish complete control within the fields occupied by regulation, there were passed during the years following, several other acts of greater or lesser import. The first of these was the Valuation Act of 1913 which had for its purpose the ascertainment, under the direction of the Interstate Commerce Commission, of certain facts relative to the worth and cost of the railway properties of the United States. A second, passed at approximately the same time, was the so-called Panama Canal Act which was intended to eliminate railway operation of competitive boat lines. Although the Clayton Act of 1914 had certain significance, this was minor as compared with the Adamson Act. This latter, the first of its type to be passed by Congress, was designed ostensibly to further the establishment of the eight-hour day for railway workers, but actually accomplished an increase in the compensation of certain classes of labor. Yet another step made in the direction of more complete control of the railways appears in the Esch Act of 1917 which conferred upon the Interstate Commerce Commission, very broad powers over matters of car service. Such, in brief, are the laws upon which the regulation of interstate commerce rested prior to 1920.

IMPORTANT JUDICIAL DECISIONS

The courts, however, had not been idle during this period. Rather, in certain conspicuous decisions, the powers of the Commission had been upheld and extended and the scope of railway cooperation had been restricted. In point of time the first conspicuous decision was that in the Trans-Missouri Freight Association case in which the Sherman Anti-Trust Act was for the first time applied to the railways,

and applied in literal fashion. All agreements involving interstate rates, without regard to reasonableness, were declared illegal. In the next, the Northern Securities case, which involved the control of competitive railway lines by a holding company, the Supreme Court again so applied the Sherman Act as to circumscribe cooperation on the part of competitive railways. A third significant decision based upon the Sherman Act dealt with the legality of the Union Pacific–Southern Pacific merger. The question here involved was again that of the extent to which cooperation and interrailway ownership might be carried legally, and once more the decision was adverse to the contention of the railways concerned: the relationship established under Harriman control between the two great properties concerned was declared unlawful. The first important decision of the court which dealt with the work of the Commission was handed down in 1910 in connection with the dispute between the Interstate Commerce Commission and the Illinois Central Railroad over the distribution of coal cars. Here, in part as a result of a realization of earlier error in its holding, in part because of certain changes in regulatory law made by the Hepburn Act a few years earlier, the Supreme Court held, and later maintained the position taken, that the decisions of the Interstate Commerce Commission were to be regarded as final on matters of fact. The second important decision affecting the work of the Commission came soon thereafter, in 1913, when, by its holding in the Shreveport case, the United States Supreme Court extended the authority of the federal body to cover, in addition to interstate commerce, all instances in which state regulation of *intra*state commerce proved burdensome to movements of an interstate character. Certainly it may be said with full measure of truth that, just as the court decisions incident to the Act of 1887 had been, almost without exception, destructive of the purpose of the Act, so did these later decisions tend uniformly to strengthen and to extend the scope of federal control.

EXTENT AND SCOPE OF STATE REGULATION

Before effective action had been taken by the Federal Government in regulating carriers engaged in interstate commerce, many of the states had developed a policy of positive and comprehensive control. The demand for regulation which had first appeared in the early seventies and which had reappeared again in the eighties, swept forward with a force not to be denied in the years following business recovery after the depression of the middle nineties. In consequence, there appeared rapidly upon the statute books of the various states legislation of a diverse character, but designed in each instance to meet, in what seemed to be the most effective manner, outstanding abuses. In general, such legislation created the so-called mandatory commissions in contrast with the advisory commissions which had existed earlier. These mandatory commissions, as the name indicates, exercise prescriptive powers and by 1914 existed in every state within the United States but Delaware.

Although the powers exercised by these state regulative bodies varied widely, the legislation under which they acted almost without exception permitted positive control of freight rates and of service, passenger rates having been fixed in many jurisdictions by definite legislative act. The power to control accounting practices was also generally given as well as all necessary powers incident to the elimination of discrimination, personal, place or commodity. Certain of the states exercised control in the public interest over both the construction and abandonment of mileage; some gave to their respective regulative bodies broad powers over the issuance of securities and over certain other financial practices. Operating policies were also affected in many states but, aside from giving to commissions the power to order physical connections and to establish joint stations, such control was exerted generally through prescriptive legislation such as maximum train length laws, "full crew" laws, laws purposed to secure a minimum average daily movement

of shipments, and those directing the type of equipment to be used, this last normally with respect to safety considerations. From these statements it appears that state regulation in certain instances was more comprehensive and was, at times, of a more constructive type than federal prior to 1920. However, to say that state control evidenced a better understanding of the nature and needs of the railway industry, on the whole, than federal control—indeed, was even equal to it—is an exaggeration. Nevertheless, the work of certain of the more progressive states, such as Wisconsin, New York, Massachusetts, Texas, and California, formed a splendid experimental background for the development of a sounder, more constructive type of federal control as well as of state control in other jurisdictions. Again the state was the laboratory where various theories and principles were tested, to the ultimate benefit of both state and nation.

RESULTS OF RAILWAY REGULATION

In summarizing the results of regulation as it evolved during this period, three distinct consequences are apparent. After a sharp and prolonged struggle the railways were forced to a recognition of their status as an industry "burdened with a public interest," and the consequent effective control gave definite immediate gain, more conspicuously with respect to a comparatively low level of rates and a comparatively high type of service. However, the value of these gains was minimized by the two other conspicuous consequences of the policy of close regulation. Without doubt, as was previously stated, the parsimonious character of regulation, particularly state but also federal, has been responsible in no small degree for the decline in railway credit. The other apparent unhappy consequence of regulation during this period, restrictive and punitive in character on the whole, was to discourage the entry of able and trained minds into the railway field just as it discouraged capital. A field in which the opportunity for individual

initiative and for the employment of constructive imagination was lessening rapidly could not continue to attract men of the capacity of those who directed railway operations during earlier years. Yet it is obvious that the trained and able man is needed, as perhaps never before, to solve the increasingly difficult and complex problems which face the present-day administrator of railway properties. To the misfortune of both the public and the railways, as the demand for capacity of high order in this field has increased its attractiveness has lessened. The close of the period threatened managerial as well as financial disaster even though the former impends less immediately and less clearly than the latter.

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VIII

DEVELOPMENT OF THE RAILWAY PROBLEM: FEDERAL CONTROL

The railway situation prior to America's entry into the European war. Organization of the Railroads' War Board. Work of that Board. Federal operation of railways ordered by President Wilson. Reasons for the President's action. Organization of the railways for operation. The standard contract: reasonableness of the compensation paid in accordance with its terms. Work of the Federal Railroad Administration. Railway rates during federal control. Wages and labor disputes. Capital expenditures. Miscellaneous undertakings. An evaluation of federal control: operations; classification and rates; labor policy; financial results. Conclusion—federal control justified. Mechanical progress during the fourth period in railway history. Summary.

YET another conspicuous feature of the period which closed with 1919, and the outstanding one of those years, was federal control of the railroads; or, perhaps, to speak with greater exactitude, government operation of those carriers. This unusual combination of private ownership and government operation of railways developed out of war conditions. Though due immediately to our own entry into the struggle, its cause reaches back very clearly into the transportation situation as it developed during the latter part of 1916 and through the year 1917. Traffic during the last half of the year 1916 was unusually heavy and an important element of that tonnage was export business. This latter, because of the failure properly to coordinate railway and port facilities and the disturbance of ocean shipping consequent upon the German submarine campaign, made it increasingly difficult to secure the release of cars and their return to the owning roads. The terminals of eastern carriers became badly congested and the accumulation of loaded cars began to reach westward, filling all available yards and sidings. In consequence, tonnage became too

crowded to handle expeditiously. Carriers in the West and South were embarrassed because of the situation confronting the carriers which served Atlantic ports; it was almost impossible to secure the return of empty cars belonging to them even when those cars had been unloaded—the eastern carriers retained them to replace equipment of their own which was serving so generally a warehouse function. To meet this condition there was established by the American Railway Association at Washington, in December, 1916, a so-called Car Service Commission. This Commission was authorized to obtain necessary information concerning the need for equipment and to issue orders for its return. The magnitude of the problem and the failure of certain of the carriers to observe the orders of the Commission, made it impossible to improve the situation greatly. Due to the activity of the Interstate Commerce Commission, however, the railways were stimulated to accomplish a reorganization of the Car Service Commission, the carriers agreeing to be governed by such rules as it might prescribe. Trusting that the situation would now be handled satisfactorily without positive action on its part, the legality of which was in doubt, the Interstate Commerce Commission confined itself to co-operation with the carriers. In May, however, through the passage of the Esch Bill, the Interstate Commerce Commission was clearly empowered to deal with the situation. In the meantime, however, the United States had declared war upon the Central Powers. The problem immediately became a broader and more difficult one than enforcing relative equality among shippers; the goal was now maximum service as an aid in winning the war.

ORGANIZATION OF THE RAILROADS' WAR BOARD

Prior to the declaration of war, steps had been taken by the carriers to provide for such an emergency. At the suggestion of Mr. Daniel Willard, president of the Baltimore and Ohio Railroad and associated in an advisory

capacity with the Council of National Defense for which provision had been made in the Army Appropriation Act of August, 1916, the American Railway Association had provided a special Committee on National Defense, composed of 18 railway officials from various parts of the United States. This Committee met with the Secretary of War and others early in March, and at this meeting general plans were developed for the effective cooperation of railways and government in case of war. Immediately following America's declaration of war, at a general conference of railway executives in Washington which was attended by about 700 railway presidents representing practically the entire mileage of the United States, the Committee on National Defense was enlarged and from it was selected a Committee of 5 which was to function as the Railroads' War Board. This Board, with headquarters in Washington, endeavored, with the assistance of various subcommittees, to accomplish that "continental railway system" which the general meeting of the executives had indicated as the railways' goal.

WORK OF THE WAR BOARD

This War Board immediately set about its task of increasing the efficiency of the railway plant. In its efforts it enjoyed splendid cooperation from both the Council of National Defense and the Interstate Commerce Commission and, in the face of difficulties arising both from war conditions and from its complete dependence upon the voluntary cooperation of individual carriers, accomplished much in the better adaptation of service to war needs. The Board issued orders governing the transfer and use of special types of equipment; pooling of coal shipments was ordered; box cars were pooled; passenger service was curtailed that freight movements might be increased; and a drive for the more intensive loading of both cars and locomotives was made which, through the cooperation of shippers and the

efforts of the carriers themselves, resulted in distinct gains. But despite its best efforts, the War Board realized late in 1917 that coordination of the railways under a voluntary scheme must fail to give maximum results. The average load per car had shown an almost steady increase in response to the demand for heavier loading; the average number of car-miles per day had been increased also by a campaign among the carriers to that end, but this improvement steadily declined from the maximum attained in May. In December, because of peculiarly difficult operating conditions, the figures had dropped to less than 75% of that of eight months previous. Serious difficulties were encountered in securing that complete cooperation which was essential to the maximum utilization of the railway plant, and yet there was serious doubt in many quarters as to the legality of the transfer of broad powers by competitive carriers to any central body. Nevertheless, late in November it became so apparent no other plan would succeed that the railways in the Eastern district took measures to pool "all available facilities on all railroads east of Chicago . . . . to the extent necessary to furnish maximum freight movement." The operating committee supervising this undertaking established headquarters at Pittsburgh and took immediate and drastic steps to accomplish the end in view; traffic was re-routed, unnecessary passenger and fast freight service was suspended, and rules looking toward the maximum use of equipment adopted. Effective results were obtained but the combination of circumstances facing the carriers at this time made the problem almost impossible of private solution.

FEDERAL OPERATION OF RAILWAYS

In the meantime, the Interstate Commerce Commission had been investigating the railway situation and early in December recommended in a special report to Congress one of two alternatives, that the President take over the rail-

ways and operate them for the duration of the war, or that all legal obstacles to the complete unification of the railways for that period be removed and that the government give the railways such financial assistance as might prove necessary. Although the Commission as a body offered these two alternatives, Commissioner McChord was emphatic in his own separate statement that voluntary cooperation among the carriers was insufficient to solve the problem even though all barriers be removed, declaring that "the strong arm of government authority is essential if the transportation situation is to be radically improved." Experience during the month of December seemed to offer support to this latter position. Although the entire difficulty lay in the territory between Chicago and St. Louis on the west and the Atlantic ports on the east, the situation in this strategic area became so bad that on December 26, 1917, President Wilson issued his proclamation under which he took possession, in the name of the United States, of all railways and waterways of the country in accordance with the war powers granted in 1916 by Congress.

The President was influenced to take this radical step in an effort to secure more effective war service from the railways by at least three major considerations. The situation demanded the essential unification of transportation facilities, yet two obstacles to this unification existed, the legal barriers to close cooperation and those inherent in the nature of private competitive enterprise—the fear of financial loss through cooperative action and the psychological unpreparedness of men trained in competitive struggle to surrender independence of action. In the second place, adequate provision for the expansion of the railway plant, to meet both normal needs and the exigencies of war traffic, had to be made. Private operation faced two important difficulties here. Railway credit was weak and this situation was certain to be aggravated by competition for funds with the government which was endeavoring to float great bond issues. But even with funds available, it would be

more difficult for the railways to secure needed materials under the priority system in force than for the government. Finally, it seemed that government operation would give added assurance of that continuity of service so utterly essential during a critical period. The railways had lost, at the close of 1917, large numbers of employees through the operation of the draft and to war industries which attracted workers by a high level of wages, and it was certain that those employees remaining in the service must receive a sharp increase in wages immediately to compensate for rapidly rising living costs, else the country would face the possibility of a strike. And such a prospect was disturbing, since the position of railway labor was perhaps stronger at this time than it had been at any time before and its sense of injustice had been thoroughly stirred by the relative inadequacy of railway wages. Such, then, were the principal reasons for the advent of government operation of railways in 1918 and, although there may remain always a doubt in the minds of some as to the necessity for this step, a careful study of the situation at the close of 1917 indicates that President Wilson, not knowing how long the war might continue, acted wisely.

REORGANIZATION OF THE RAILWAYS

Under the original order issued, the entire railway system of the United States was taken over by the government but during the first six months of 1918 a large number of minor properties were turned back under the reservation made in the original proclamation. About 560 properties were retained and operated by the government until the close of the period of federal control. Included among these were practically all Class I railways and a large number of facilities such as union station companies, terminal companies, and switching companies, here being included belt line railways. For purposes of administration the properties retained by the government were divided ter-

ritorially, first into three districts, Eastern, Southern, and Western, later into seven. This division had for its prime purpose more efficient management. In so far as possible the boundaries of the various districts were so fixed as to make them correspond to natural traffic areas and to include entire railway properties within a single district. Of the seven districts four lay to the east of the Mississippi and three to the west. In the Eastern region were included Indiana, Ohio, New York, a portion of Pennsylvania and of New Jersey, and the New England States; in the Allegheny the major part of Pennsylvania and of New Jersey, Maryland, Delaware, and a portion of West Virginia; and in the Pocahontas were included essentially West Virginia, and the northern two-thirds of Virginia, with a small part of Kentucky. The Southern region included the area south of Eastern and Pocahontas territory and east of the Mississippi, and the Southwestern, that section west of the Mississippi and east and south of a line from St. Louis through Kansas City to El Paso. North of a line from Chicago through Sioux City, thence westward through southern Montana to the Pacific Coast at the Oregon-California boundary, lay the Northwestern region and between it and the Southwestern was located a large area which was designated as the Central Western region.

At the head of this great national railway system was placed William G. McAdoo, Secretary of the Treasury, who was designated as Director-General of Railroads. Cooperating with him in Washington was the so-called Central Administration with the following major sections:

Division of Law
Division of Operation
Division of Public Service and Accounts (later separated)
Division of Labor
Division of Capital Expenditures
Division of Traffic
Division of Finance and Purchases
Division of Inland and Coastwise Waterways
Board of Wages and Working Conditions

At the head of each of these sections was placed a man of broad experience in the railway field and, although changes in personnel were made from time to time, at no time were other than practical railway men in charge of important work. That men of such standing as C. A. Prouty, Carl R. Gray, Judge R. S. Lovett, W. S. Carter, Edward Chambers, and others of like caliber though perhaps lesser reputations, served upon the Central Administration staff, is clear evidence both of the desire of the Director-General to establish an effective organization and of his success in enlisting, through patriotic appeal, the services of the best men available.

At the head of each regional organization was placed an official designated as Regional Director. To these posts able railway executives were appointed, among them being A. H. Smith, president of the New York Central, C. H. Markham, president of the Illinois Central, Hale Holden, president of the Chicago, Burlington and Quincy, R. H. Aishton, president of the Chicago and North Western, and others of equal capacity. In general, the man selected to serve in a particular region was an executive of long experience in that territory, a policy which made for a peculiar effectiveness of service. At each of the regional headquarters a staff organization was developed and, by way of illustration, the structure of that organization for the Eastern region will be given. Among the various divisions were a budget committee, a purchasing committee, a freight traffic committee, a committee supervising North Atlantic ports freight traffic, a passenger traffic committee, a coal and coke rate committee, and a marine department. Functioning at the head and as members of these committees were men of practical railway experience, possessed of familiarity with the field in which they worked. Subordinate and reporting directly to the Regional Director were the executives of the individual railways within the region as the mileage was organized for operation. In general, these units were coextensive with the old corporate properties, each unit being

directed by an individual designated as "federal manager." During the early months of federal operation, the president of the property had remained in executive control, no distinction being made between the corporate and federal organizations. Later, because of an inescapable conflict of interest, an entire separation was effected, though, in most cases, the president of the corporation prior to federal control was willing to serve as federal manager and was acceptable to the Federal Administration. Toward the close of the period of federal control the personnel of the regional organizations changed somewhat rapidly, yet the government was peculiarly successful in maintaining a high average of both ability and experience, though more largely because of the country's need than a desire to enter government service.

THE STANDARD CONTRACT

As might be expected, the adjustment of relationships which grew out of the seizure of private property in railways for government operation during the period of the war proved to be involved and difficult. In accordance with the terms of the Federal Control Act, which followed essentially the terms of President Wilson's proclamation late in 1917, the so-called standard contract was worked out and this served as the basis of settlement between the government and a large proportion of the properties operated by it during the period. Under this contract the annual compensation was not to exceed the average annual railway operating income for the three years ending June 30, 1917, as ascertained and certified by the Interstate Commerce Commission, except as peculiar conditions might justify a modification of that figure. The upkeep of the property was chargeable to the government and the basis of a reasonable expenditure, therefore, was the average for the three-year period mentioned above. However, provision was made for variations in the extent of the property and for variations in both material and labor costs, though, in

so far as practicable, upkeep was to be measured in physical rather than monetary units. To make provision for both normal and war needs in the matter of additions and betterments, the government was permitted to add to or improve the property at will, the corporation being responsible to the government upon the return of the property for all such expenditures except as the carrier might show that particular improvements served a war purpose only. All corporate taxes were to be paid by the corporation, but taxes levied upon the physical property were chargeable to operating expenses and thus met by the government. All items of non-operating income were to accrue to the corporation and it was provided that, in the settlement of accounts between the railway and government, a final accounting should be made as soon as practicable after the return of the railways to their owners for operation. One of the terms of the acceptance of this contract was the surrender by the corporation of the right to appeal to the courts for further compensation. A special contract was drawn up to meet the difficulties of the so-called "short lines" which were relinquished by the President prior to July 1, 1918, but this contract, intended to give a certain degree of protection in the matter of rate divisions, allocation of equipment, and routing of competitive traffic, offered so little of promise that only about 15% of the lines accepted it. These small, and, by combination of circumstance, unfortunate properties were indemnified later for war losses, under the Transportation Act.

COMPENSATION PAID THE RAILWAYS

Although loud complaint has been voiced in certain quarters as to the terms of the contract from a public standpoint, the railways were little better satisfied with it than were railway-baiting politicians. It provided no compensation for the diversion of business which must inevitably modify shipping habits later and in no wise indemnified the

railway for the disruption of organizations built up with great care and effort. Furthermore, the terms of the contract failed to make provision for the exceptional property, the one for which returns during the "test period" were not typical because of unusual conditions or of policies which reduced operating income, such as generous maintenance. Furthermore, no limit was placed upon additions and betterments, but this objection proved to be almost unfortunately theoretical since properties remained essentially at a standstill during federal control. Yet recourse to the courts or to Congress promised the carriers little. In consequence, all but a relatively small number of properties, which regarded themselves as particularly aggrieved under the agreement outlined, signed the contract. This contract obligated the government to pay annually to the railways approximately $945,000,000, a figure which was variously characterized by friends and foes of the railways as reasonable and as criminally excessive. Yet this sum falls almost $10,000,000 short of a 5½% return upon 92% of the estimated value of $18,900,000,000 placed upon the railways in 1920 by the Interstate Commerce Commission. And the 92% of total mileage operated by the government was probably worth 95% or more of the tentative value just given. Not only does this fact indicate that the compensation was fair to the public, but an examination of the three years covered by the test period leads to the same conclusion. The year 1915 was unusually lean but 1916 was the best in railway history, while 1917 might properly be characterized as good. Using yet another basis of comparison—the agreement controlling government operation of British railways—it appears that its application in the United States would have resulted in practically the same compensation.

WORK OF THE FEDERAL RAILROAD ADMINISTRATION

To describe the work of the Federal Railroad Administration in the brief way possible here is difficult. However,

attention should be called to certain of the major tasks accomplished or undertaken. Effort was made to secure certain economies in service, in part as a war measure, in part as a general movement. To this end passenger service was reduced sharply until well after the Armistice, when a gradual restoration became evident. The elimination of competitive activities was also sought. The abolition of numerous off-line and downtown ticket offices was a step in that direction as was the almost complete cessation, for a time, of all activities looking toward the acquisition of traffic, including not only personal solicitation but also advertising. As a further economy measure, steps were taken to reduce both the number of railway officials receiving $5,000 or more, and the salaries paid those officials. As a result of this campaign, the number of such officials was reduced by 11% and salaries were also pared down, the maximum sums paid being $50,000 to certain of the regional directors.

A number of changes were made which were intended to give greater efficiency in the use of the plant. Wherever such action promised to promote the effective movement of traffic, terminal facilities were unified and all efforts to retain cars upon the owning road, or to return to it cars transferred under load to another line, were abandoned. In fact, not only was freight equipment pooled, but, in emergencies, passenger equipment and motive power were also moved from one line to another. To increase the efficiency of freight handling, various steps were taken. Among these were the short routing of carload shipments, the routing of all less-than-carload shipments to a given point over a particular line, and the establishment of "sailing days" and store-door delivery. Special effort was also made to concentrate tonnage and move it in train-load lots. To cut down or eliminate, if possible, the use of freight-cars for warehouse purposes, demurrage rates were sharply increased, store-door delivery assisting in lessening the amount of free time. Efforts were made to lessen idle time by appeal to the patriotism of the shipper, also.

Another measure adopted, in part to secure increased efficiency, was the standardization of equipment. Although certain objections were made by the railways at the time and later to the step, it was sound, certainly, as an emergency measure and has much to recommend it as a permanent policy. As a war measure, standardization made possible the more rapid delivery of equipment orders and considerable economies would result from the abandonment of that excessive individualism which has characterized American cars and locomotives. To accomplish more effective results in the express field the four great companies, Adams, American, Wells Fargo, and Southern, were encouraged to consolidate into the American Railway Express Company. This organization was, after a period of private operation, taken over by the Federal Railroad Administration and operated by it until the close of the period of federal control. To reduce cross-hauling and other wastes resulting from the indiscriminate movement of coal, a zoning plan was adopted under which particular sections of country could be supplied only from certain mining districts. A permit system, first used to control the movement of traffic essential for war but later employed more widely, was adopted under which it was impossible for a shipper to secure service without a permit from the Car Service Bureau, and this permit was given only upon evidence of ability to load and unload the equipment requested, without delay. Yet another important innovation was that of zoning the United States for export movements. Under this scheme five groups of ports were differentiated and export traffic moving from certain specified sections was permitted to pass only through the ports included within a particular one or ones of these groups. This scheme had for its prime purpose the relief, in some part at least, of the tremendous congestion of the principal North Atlantic ports from Boston to Norfolk. Finally, the separation of corporate and federal staff had, as a partial purpose, increased efficiency. The elimination, in so far as possible, of dual allegiance,

secured more effective support for the work of the Federal Railroad Administration.

RATES DURING FEDERAL CONTROL

One of the most interesting and at the same time difficult questions which the Federal Railroad Administration had to face was that of the control and adjustment of rates. It was obvious early in 1918 that, if the Federal Government wished to avoid a heavy deficit under the so-called standard return, a sharp increase in rates was essential. To this end the Administration announced, on May 25, 1918, a 25% increase in freight rates effective a month later, with an increase in passenger rates to not less than three cents per mile, effective June 10. Certain other changes affecting both freight and passenger service were also made which further increased the cost of movement to patrons. Under the Federal Control Act it was unnecessary to secure the approval of either state or federal regulative bodies for changes in rates, although it was clearly understood that the Interstate Commerce Commission might later, upon hearing, order a readjustment to secure justice for particular shippers or localities. The Federal Railroad Administration also initiated a movement purposed to accomplish greater uniformity in the classification of commodities. Out of this developed the present classification scheme, to be later described, in accordance with the order of the Interstate Commerce Commission in 1919. Due to unexpected changes in the volume of traffic, however, as well as to the hesitation of the Railroad Administration further to advance rates to keep pace with the rising costs of operation, large deficits were incurred by the government. These tended to increase as time passed, but notwithstanding its growing losses, the Administration refused to make further advances, holding that such responsibility should be assumed by the proper regulative bodies after the return of the railways to private management.

WAGES AND LABOR DISPUTES

One of the most important chapters in the work of the Railroad Administration deals with wages and working conditions. When the railroads were taken over by the government it was patent that an increase in wages, particularly for the lower paid groups, was essential. To obtain a factual basis for action the Railroad Wage Commission was appointed at once by the Director-General. While awaiting its report, the Administration stabilized conditions by the promise to make all increases retroactive to January 1. The recommendations of this board resulted in the issuance of General Order Number 27. Under it, increases varying from 43% for lower paid workers to none whatever for those receiving $250 or upward per month, were granted, the compensation paid for each particular position in December, 1915, serving as the base. The application of this order resulted in certain inequalities which were corrected by later supplementary orders. For the hearing of cases relating to inequalities in pay and regulations, also affecting general labor policies, a so-called Board of Wages and Working Conditions was organized. To handle all other labor questions four bi-partisan boards of adjustment were created with equal representation from the administration and the employees, each board possessing jurisdiction over disputes arising between the carriers and certain specified groups of employees. Though provision was made for dealing with unorganized workers, the organization of all railway employees was encouraged, with the result that at the close of the period of federal control, the railways faced not merely the strongly entrenched operating brotherhoods but a considerable number of greatly strengthened or new organizations which comprised practically all types of employment and included practically all workers in the service. General Order Number 27 and its supplements, together with other changes in wages and working conditions, resulted in an increase in the annual wage bill of American

railways which was estimated by the Administration itself to be approximately $965,000,000. Yet, because of the continued upward movement in living costs, labor made further demands in 1919. However, the government refused to accede, despite the urgency of labor. Thus, federal operation left a heritage in the form of an insistent demand by greatly strengthened labor organizations for additional pay.

CAPITAL EXPENDITURES

Since one of the purposes of taking over the railways was to provide adequately for additions and betterments to meet both normal and war purposes, brief mention should be made of results here. At the head of the Capital Expenditures Division in Washington was placed Judge R. S. Lovett and, based upon investigation, expenditures were authorized to the total amount of $1,279,000,000 during 1918, of which $659,000,000 was to be spent for equipment, $573,000,000 for additions and betterments, and $47,000,000 for extensions. In 1919, the Armistice having been signed, the Administration took the position that no further expenditures for capital purposes should be made unless absolutely necessary, since the desire of the public for an early return of the properties to private control was clear. In consequence, only minor additional contracts were let during that year and such undertakings completed as had been begun during the year preceding. Total expenditures for the 26 months' period of federal control, as shown by Director-General Davis early in 1921, totaled $1,144,000,000, an average of less than $500,000,000 per year, a figure far below the needs of the period and the more so when translated into physical materials and labor at inflated prices.

In addition to these major undertakings and problems of administration, there are other miscellaneous matters worthy of mention. The Pullman Company service was taken over and operated by the Administration and steps

were made toward harmonizing accounting practices among the various railways. A uniform interline way-bill was adopted and the relationship of the railways under federal control was utilized to eliminate, or at least greatly to simplify, interrailway settlements covering both freight and passenger movements. The government assumed all property risks, dropping insurance with outside companies wholly for both fire and theft. In addition to this the Administration worked out a class rate scale which was purposed to give a uniform basis of rate determination in various sections of the country and to make the distance factor of prime importance in railway tariffs. This proposal, however, as well as another, that of providing accident compensation, insurance, and pensions for railway employees, was not adopted and quite properly so, it would seem, in view of the temporary character of federal control.

RESULTS OF FEDERAL CONTROL

It is impossible to appraise accurately the results of federal control, beneficial and harmful, and this is true even in the field of financial operations where definite measurements would seem comparatively easy. Yet certain general conclusions can be drawn concerning significant features of this experiment. In the field of operation there were certain clear-cut gains. Principal among these were the benefits resulting from the elimination of competitive activities, which varied from the closing of "off-line" offices, the consolidation of "on-line" offices, and the temporary curtailment of advertising to secure traffic, to the withdrawal of many competitive and non-competitive passenger trains, the re-routing of freight and the unification of terminals. Noteworthy savings were claimed by the Railroad Administration as the result of these and other policies, such as reductions in the official pay-roll, but it is doubtful if these gains were entirely free of offset even during the war period, and certainly from the signing of the Armistice forward to the

close of the period the advantages were slight. Coal-zoning, "sailing-day," short-routing, minimized passenger service, and even the elimination of advertising expense soon went by the board. However, the government undoubtedly operated the railways during the entire period in question as effectively as could those private corporations from whose control they were taken and, had the duration of the war been greater, the comparative gain resulting from federal operation would have been correspondingly increased.

CLASSIFICATION AND RATES

In the field of classification and rate control the Federal Railroad Administration is to be credited with one distinct forward step, the substitution of the Consolidated Classification for the three books previously issued by as many districts. Although this represents but the culmination of work that had been in progress for some years, the Administration undoubtedly hurried matters to a conclusion. And, furthermore, the Director-General showed good strategy in securing the approval of the Interstate Commerce Commission for the change, since this action both reassured shippers and gave it a more permanent basis. The handling of the rate situation by the Administration is to be commended, if at all, with distinct reservations. Despite the continuous and sharp increase in the costs of operation during the period, but one increase in rates was made, and that not effective until June, 1918. By this order freight, passenger, and Pullman rates were advanced materially upon all railways operated under the direction of the Director-General, yet it soon became evident that both expenses and traffic conditions were so abnormal that even the new rates would not permit the railways to earn a sufficient sum to meet the standard return. Nevertheless, throughout the year of 1919 and the early months of 1920, the Administration steadfastly refused to accept responsibility for a further increase, despite the absolute power possessed of initiating both inter-

state and intrastate rates. Perhaps it was reasonable to decline further responsibility; perhaps it was just to compel the paying of deficits from the general treasury, thus regarding them as war costs; but certainly the financial showing of the period of federal control would have been quite different had rates advanced with costs and the situation of the railways when returned to private control would have been vastly stronger than it was under conditions as they actually existed March 1, 1920.

THE LABOR POLICY

In no field did greater changes occur during the 26 months of federal control than in that of labor. During a considerable period prior to America's entry into the war, railways in manufacturing districts found it well-nigh impossible to hold skilled workmen in competition with industry, and this handicap was increased by the feverish activities following our entry into the conflict. A wage advance was made even more urgent by the demand of those remaining in the service for higher compensation commensurate with the increased and still rising cost of living, particularly since that demand came in part from the operating brotherhoods which had shown their coercive power a year previously in compelling Congress to pass the Adamson Act. Persuaded to remain faithful to their employment by the promise that all increases awarded would be made retroactive to January 1, 1918, the great army of employees awaited eagerly the findings of the Railroad Wage Commission. Upon the basis of those findings was issued General Order Number 27, as previously mentioned, with its increases in inverse ratio to the compensation then received. For the first time workers of slight bargaining power received a wage commensurate with their worth to the carrier rather than one based upon a lack of compulsion. A second demand by the employees for a general increase the Administration refused to meet, postponing settlement first on the ground that the

cost of living would drop and later on the ground that the matter should be handled upon the return of the railways to their owners early in 1920. This procrastination and failure to squarely meet the issue contributed largely to the labor unrest of 1920; indeed, the "outlaw" switchmen's strike was a direct consequence of procrastination.

Other important matters relating to labor policy must be mentioned before dismissing the subject. The introduction of the bi-partisan boards of adjustment, composed of equal numbers representing the railways and labor, is noteworthy, both because of the fact that it was a new method of settling disputes in this field, and especially because of the unusual success of these boards. Then, too, central control of matters affecting labor made almost inevitable the standardization of wages, rules, and working conditions throughout the United States, with its eventuation in the so-called national agreements, and the friendly attitude of the Administration toward labor organizations so promoted the growth of unionism in the railway field that union membership had increased from 551,500 in 1914 to 1,538,519 at the close of the period of federal control. The basic eight-hour day was established for all railway labor and steps made toward such a shorter day in actuality. In summarizing results with respect to labor, one writer says, "It is no exaggeration to say that the gains made by railroad labor . . . in the power of collective bargaining, in the development of union organization, in the standardization and nationalization of practices and policies, were greater than in the entire previous period of their existence." [1] Yet these gains were made at the expense of others, the railways or the public, perhaps both, and may not have been wholly justified.

FINANCIAL RESULTS AND CONCLUSION

Judged from an absolute standpoint, the financial results of federal control were conspicuously disastrous. Deficits

[1] Dixon, *Railroads and Government*, p. 189.

accruing from the operation of Class I railways during the period of federal control totaled more than $667,500,000, to which was added approximately $75,000,000 accruing from the operation of other transportation agencies, land and water, and further sums that bring the total for the 26 months to about $900,000,000. To this must further be added an estimated $250,000,000 for undermaintenance, outstanding claims, and additions and betterments serving only a war purpose. But this enormous sum of $1,150,000,000 does not represent the total cost—the six-month guarantee, following the period of federal control, which was purposed to ease the "return to normalcy" for the railways, cost approximately $550,000,000 more; indeed, it is doubtful if the government escapes finally at a cost materially below $1,700,000,000 for the entire period. To this must be added as a temporary outlay, since the government found it necessary to fund railway indebtedness for capital outlays in most instances, a "forced loan" approximating $1,000,000,000. But to regard even the former figure as a total loss is an error—it merely represents that amount below a fair total cost which the consumers of railway service paid during the period in question, a sum to be regarded as a war expense. In commenting upon the financial results of the experiment in government operation, Director-General Hines declared, in his final report, "It not only did not cost more than private control would have cost during the same period, but cost considerably less on account of the economies growing out of unifications, and the total burden put upon the public (through rates and taxes) on account of railroad costs was substantially less than would have been necessary if the railroads had remained in private control and rates had been raised enough to preserve their credit; it protected the investment in railroad properties, whereas without federal control those investments would have been endangered." And it would seem, upon careful appraisal, that the position taken by him would be hard to disprove.

In conclusion, it may be said that the period of federal control will never be one to which advocates of governmental entry into the transportation field can "point with pride"; but it is equally true that the bitterest opponents of the policy adopted to meet better a war emergency will be as troubled to establish his right to exhibit it as a "horrible example." Mistakes were undoubtedly made, and these are peculiarly visible to those who judge after the fact, yet it is difficult to understand how the railways of the country could have been operated with maximum efficiency and with minimum injury for the future except as they were. In short, federal control may not have been an absolute success but, when judged upon the basis of its accomplishments and failures, the obvious defense is that results might easily have been less satisfactory under any other plan.

RAILWAY MECHANICAL PROGRESS, 1893-1919

Before closing a discussion of the fourth period in railway growth, the rapid improvement of the physical plant merits mention. Progress in this field has contributed much to that efficiency of railway operations which has so characterized this period. To meet the demands made upon the roadway by larger locomotives and heavier car loading, it is necessary to build more solidly. In consequence, all lines carrying dense traffic have been carefully ballasted and in place of the old 65-75 pound rail the carriers have substituted steel weighing from 85-100 pounds, with the 120-pound rail appearing on heavy traffic lines. Bridges have been correspondingly improved and the cost of maintenance of roadway and structure has been markedly reduced by many railways through scientific timber treatment. It was during this period, also, that important gains were scored in the field of motive power. The average tractive capacity of locomotives in service during this period increased by more than half, and certain improvements introduced made the locomotive a more efficient mechanism. Perhaps most sig-

nificant of these improvements was the superheater which largely eliminates the inefficiency resulting from the use of wet steam in the cylinders, and the compound locomotive which, first attaining prominence during this period, is designed to use to the maximum the power resident in steam developed. The mechanical stoker, made necessary by the introduction of the mammoth locomotives which have become so numerous during the past several decades, represents a distinct advance also, as does the so-called booster, by means of which added tractive power is available in emergencies through the use of weight normally not utilized in the development of tractive power.

Great progress has also been made in car construction, that other factor so intimately related to railway efficiency. This holds true not only as to type of construction and capacity but also as to diversification in types. In the modern passenger coach wood construction has given way wholly to steel, and in the building of freight equipment the steel underframe is universally employed. In fact, increasing numbers of cars, particularly of the gondola type, are being constructed of all steel or with steel framework. Though figures relative to the capacity of passenger coaches are not available, a casual comparison of the recently built coach with such few survivors of the eighties as may yet be in service on branch or suburban lines, makes it evident that passenger capacity has increased sharply. This increase has probably resulted in no reduction in the dead weight per passenger, however; on the contrary, due to steel construction, this weight has been increased. Average freight-car capacity, like tractive power, increased during the period by more than 50% and with that increase in capacity has come a wide diversification in types of equipment to meet the needs of a rapidly developing and diversified industrial life. But diversification is not peculiar to freight equipment; in the passenger field, during the quarter of a century embraced within this period, many new types of equipment were brought out better to satisfy the needs

and desires of the traveler, both for him who is willing to pay an additional sum for such service and him, "the common people," who must ride in such equipment as is placed at the disposal of the ordinary passenger.

SUMMARY

To make a summary statement concerning this period is exceedingly difficult and this is primarily true because events are so recent that it is impossible to study them objectively and to discern results clearly and surely. Certain it is that many of the features of this period, particularly the difficulties faced, had their roots in that score of years which ended in the disaster of 1893, and certain it is, too, that the features of this period—the experience of state and federal governments with regulation, the gradual failure of the railway plant to meet traffic needs because of credit and other conditions, and even the experience of federal control with its nondescript results—must exert a marked if not a dominating influence upon the railway policy of the public during the years which lie immediately ahead. If our expectations for those years were to be judged in the light of the situation of the railway industry at the close of the period here discussed, pessimism would be clearly justified. But that both the railways and the public will profit by and capitalize the experience which lies behind, is only reasonable to expect. Such results must tint the picture with brighter colors. Indeed, the law which effectively marks the close of this period, the Transportation Act of 1920, gives clear evidence of a change from public antagonism, with its resultant punitive and restrictive regulation, to public understanding and consequent constructive action. The American public has throughout been unfortunate in its failure to foresee and to meet constructively the great problems arising in the railway field; instead, under the leadership too often of politicians rather than statesmen, they have, in righteous indignation, "locked the door after the horse was

stolen." Yet today there appears to be greater justification than at any time in the past for optimism; better reason to believe that, despite its failures to act as "hindsight" might demand, or as a statesmanlike understanding might indicate desirable, the American public will, with the railway problem just as with many others, do something more than merely "muddle through."

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——*See also* the *Readers' Guide* for numerous magazine articles dealing with the period of federal control.

IX

TERRITORIAL GROUPINGS

Major territorial groupings. Minor territorial groupings: New England, Trunk Line, Southern, Granger, Southwestern, and Transcontinental. Permanence of existing territorial groupings. Railway mileage—concentration in the hands of Class I carriers. Railway mileage in the United States in proportion to population and area. Comparison of railway facilities—United States and Europe. Magnitude of the railway business; equipment utilized and moneys handled. The railway service. The railway of vital importance.

In the preceding discussion of the development of the American railway net, that vast mileage has been regarded as a whole, except in so far as attention was directed incidentally to the growth of particular properties or to the increase of mileage serving a certain section of country. For a detailed study of that great plant, a grouping of the various properties is helpful, if not essential. Not only is its magnitude better appreciated if attention be fixed successively upon certain portions of it, but the identity of interest which rests both upon traffic and upon ownership can be more clearly indicated also. Furthermore, it is desirable for statistical purposes to group railway properties according to some plan; so doing facilitates the compilation of data and gives a basis for comparison and analysis. These groupings are generally made along two lines, territorial and ownership, and, although it is impossible to avoid certain overlappings, reasonably clear lines are discernible in each case, particularly with respect to the latter.

MAJOR TERRITORIAL GROUPINGS

Two territorial groupings of the railways of the United States are recognized generally. In accordance with the

one, the major, which is the more important from a statistical standpoint, continental United States is, like ancient Gaul, divided into three parts. These districts are known as Eastern, Southern, and Western. The first of these lies east of Lake Michigan and a line drawn from Chicago, through Peoria, to St. Louis and east of the Mississippi to the junction of that river with the Ohio, and is bounded on the south by the Ohio and Potomac rivers. The Southern district lies south of those streams and east of the Mississippi, while the Western includes that great area to the west of the two already defined. Although weaknesses and inconsistencies are discernible, this territorial division is justified to the extent that there is justification for the definition of any such large areas. Production conditions differ widely among the three sections. Traffic and the conditions under which that traffic is handled are so diverse as to have resulted in the development of a separate classification of goods for each. Striking differences exist also in the density and the employment of the population. Furthermore, the actual location of railway lines makes it relatively simple to so divide the United States; in fact, it is improbable that any boundaries, other than those named, could be chosen which would result in less overlapping of lines. Few properties operate more than a small mileage in a second district and few, indeed, operate extensively in more than one district. This major grouping serves two important practical purposes: statistical data are compiled by the Interstate Commerce Commission for each district and it has become customary during the decade past for the carriers in each of these districts to act in concert when the problem of the general rate level is before the public and its agents, the regulative bodies, for consideration.

MINOR TERRITORIAL GROUPINGS—NEW ENGLAND

These major groupings are so large, however, that wide differences exist within a single district—traffic varies

Figure 12: Major and minor railway groupings

greatly, physical conditions governing operations are quite divergent, and certain lines seem to form a local unit rather than to constitute an integral part of the mileage of the large area. Further differentiation, using traditional though somewhat unofficial boundaries, is, therefore, both helpful and needful to an accurate understanding. Of the minor territorial groups at least six may be clearly distinguished. The first of these, New England territory, has a threefold basis for separate consideration. Traffic in the area is largely local and its lines operate almost without exception exclusively in the New England states. Furthermore, these properties have been largely owned and controlled by New England capital from their beginning and have long been identified primarily with the industrial and commercial development of that restricted area. Geographically, two distinct groupings of lines exist within the New England territory; the northern, which serves northern Massachusetts and the three states to the north and northeast; the southern, which serves the remainder of that section. Among the more important properties operating in the northern area are the Boston and Maine, Boston and Albany, Central

Vermont, Rutland, Maine Central, and Bangor and Aroostook, these serving, among others, the following major centers: Boston, Lowell, Nashua, Manchester, Concord, Portland, Lewiston, Augusta, Bangor, Rutland, Montpelier, Burlington, Troy, and Albany. In the south the most important property is the New York, New Haven and Hartford, with the Central New England and Central Vermont playing a minor rôle, these railways serving, among others, Boston, Worcester, Springfield, Fall River, Providence, Hartford, New Haven, Bridgeport, and New York.

As a group, the New England railways carry a comparatively large tonnage of manufactured goods and a relatively small tonnage of mineral products. Passenger business is also an important item. The significance of manufactured goods and of passenger traffic is greater in the southern portion than in the northern, however; in the latter, agricultural and certain animal products are more important traffic elements. From a competitive standpoint the struggle between the rail lines and coastwise vessels is the outstanding feature in New England, though a small degree of rail competition exists. Market competition, more particularly between New England coast points and New York centers, also appears as a factor.

TRUNK LINE TERRITORY

A second area which is set apart both by tradition and by fact is the so-called Trunk Line territory, an area identical with the Eastern district mentioned before except for the exclusion of New England. Here again the physical location of lines, both historical and present, serves to give unity to the area. The railways operating in it center in Chicago and St. Louis on the west and in New York, Philadelphia, and Baltimore on the east, Buffalo and Pittsburgh being the principal intermediate centers. Furthermore, Trunk Line territory has evolved during the years past a separate and distinctive rate structure which constitutes an

added basis for its differentiation. In this territory there are, by virtue of differing interests, really two groups of lines; the one comprises those properties which are interested primarily in the movement of general tonnage and this largely in an east-and-west direction, the other the so-called anthracite roads which are concerned principally in the movement of coal. Among the more important of the so-called through lines are the New York Central, the Erie, the Pennsylvania, the Baltimore and Ohio, the Nickel Plate, the Grand Trunk, and the Michigan Central, these roads serving not only the important eastern and western termini already mentioned, but innumerable intermediate centers among which Indianapolis, Cincinnati, Detroit, Cleveland, Toledo, and Columbus are perhaps outstanding. The principal anthracite roads are the Delaware, Lackawana and Western, the Philadelphia and Reading, the Lehigh Valley, and the Delaware and Hudson, all of which radiate from the anthracite district to Buffalo, Philadelphia, New York, and Albany.

The tonnage of the railways operating in the Trunk Line area shows a heavy movement of minerals and mineral products, also of manufactured goods. A comparatively heavy passenger business is likewise handled. Although the tonnage of other types of traffic is relatively light, certain individual items, such as grain and grain products, fruits and vegetables, and packing-house products, are proportionately heavy. A large part of our import and export business moves through this territory, also. From a competitive standpoint rivalry has been, and remains, keen in this territory. This is true both of the rail lines themselves and of the rail lines on the one hand and the boat lines upon the Great Lakes, the Erie Canal and, in a minor degree, upon certain of the rivers, on the other. Competition is also keen among certain of the large market centers, particularly New York, Philadelphia, and Baltimore in the East, and Chicago and St. Louis in the West. However, market rivalry is in no sense confined to the points named, but functions actively

among the lesser centers throughout the intervening territory; it is today, with rail and water competition under control, the most potent factor in the area making for a modification of rates.

SOUTHERN TERRITORY

The third of the so-called minor groupings corresponds precisely to the Southern district as defined by the Interstate Commerce Commission and is known as Southern territory. The separate consideration of this area rests upon three grounds. From a historical standpoint the railways serving the area developed quite apart from the mileage of adjacent sections, the three rivers which form its principal boundaries on the north and west remaining unspanned for many years; even yet no southern property, barring one, operates more than a small mileage in adjacent territories. A second reason for separate consideration lies in the fact that the railways of this area serve, and are almost exclusively interested in, one or another of the important ports of this section—Norfolk, Charleston, and Savannah on the Atlantic; Pensacola, Mobile, and New Orleans on the Gulf; and Memphis and Louisville on the rivers, or in outstanding interior points such as Atlanta, Birmingham, Chattanooga, and Nashville. There developed in this area also a rate structure quite distinct from that found in any other considerable portion of the United States.

Though commonly the roads operating in Southern territory are grouped as a whole, a somewhat more accurate picture of conditions may be had if the larger area be divided, upon the basis of traffic and geographical location, into three lesser ones. The first of these comprises western Virginia, West Virginia, and the eastern portions of Tennessee and Kentucky and is served by the soft-coal carriers, conspicuous among which are the Norfolk and Western, the Chesapeake and Ohio, and the Virginian. These lines also extend eastward to tidewater. The Louisville and Nash-

ville, although its principal mileage is located to the westward, might also be grouped with these from a tonnage standpoint. Among the important centers served by these properties are Norfolk, Portsmouth, Richmond, Roanoke, Charleston, and Huntington.

From the Potomac southward on the eastern slope of the Appalachians lies the Atlantic or Piedmont area which includes Virginia, the Carolinas, and a major portion of both Georgia and Florida. Prominent among the properties which operate in this section are the Atlantic Coast Line, the Southern, the Seaboard Air Line, the Central of Georgia, and the Florida East Coast. In addition to the Atlantic ports from Norfolk to Tampa, these properties serve Baltimore, Washington, Richmond, Wilmington, Charlotte, Asheville, Charleston, Columbia, Macon, Augusta, Columbus, and Atlanta. West of the Appalachians and of Georgia lie the Mississippi Valley lines which include, among others, the Louisville and Nashville, the Illinois Central, the Southern, and their subsidiaries. These properties serve, besides the Gulf and river ports from Pensacola to Covington, such important inland points as Lexington, Knoxville, Nashville, Chattanooga, Birmingham, Montgomery, Meridian, and Jackson. One of the lines in this area, the Illinois Central, is the only property operating in the South upon a large scale which has an important interest in another territory.

Naturally, the tonnage of the soft-coal lines is largely made up of the commodity which gives name to the group, and coal also forms an important part of the tonnage of the Louisville and Nashville. An unusually large proportion of the tonnage of other roads operating in Southern territory, however, both in the Piedmont section and in the Mississippi Valley, consists of the products of agriculture, among which grains, cotton, and fruits and vegetables are most important. The forests of the South also contribute a relatively large tonnage, and passenger traffic furnishes a larger portion of total operating revenues in this section of comparatively low income than for the United States as a whole.

Competitively, no section of the United States is more interesting than Southern territory; even today, despite the stabilization which has resulted from interrailway agreements and from the development of large ownership groupings, it is active. Although rivalry between rail lines has been minimized and river traffic represents a potential rather than an active threat, the possibility of coastwise movement still exerts an important influence upon rates. This influence is direct upon tariffs from the North Atlantic states to points in the Piedmont and Gulf sections; indirect upon rates west of the Appalachians through the operation of market and industrial competition. It is competition of this latter character, however, which is particularly sharp here; the struggle between the industrialized New England and North Atlantic states and the newer area, lying between Chicago and St. Louis on the west and Buffalo and Pittsburgh on the east, is exceedingly keen and difficult to control, and market competition has always been a peculiarly disturbing factor in Southern territory. Indeed, it may be said truly that these two types of competition, industrial and market, are largely responsible for the persistence of a system of rate-making in the South which has been peculiarly provocative of public protest.

GRANGER TERRITORY

The great area included within the Western district constitutes three minor territories. One of these lesser sections, known as Granger territory, lies between Chicago and St. Louis on the east and the Rocky Mountains on the west, thus embracing western Illinois, northern Missouri, a major part of Kansas, eastern Colorado and all that country northward to the Canadian border. Here, again, essentially the same three bases for differentiation exist as for Trunk Line and Southern territories. The early properties of importance operating in this territory were built westward from Chicago, St. Louis, Kansas City, and Minneapolis–St. Paul,

and confined their operations largely, if not wholly, to the Granger section. Among these were the Chicago and North Western, the Chicago, Milwaukee and St. Paul, the Chicago, Rock Island and Pacific, the Chicago, Burlington and Quincy, the Atchison, Topeka and Sante Fe, the Great Northern, the Northern Pacific, the Minneapolis, St. Paul and Sault Ste. Marie, and the Chicago Great Western. In later years many of these properties have been extended into other sections until today only four of the great railways named remain primarily Granger in interest—the Burlington, the Great Western, the North Western, and the Soo. A second reason for differentiating this area lies in the fact that the interests of properties operating therein, at least to the extent that they are Granger in character, are identified with important western points as Duluth-Superior, Milwaukee, and Chicago on the lakes, Minneapolis–St. Paul and St. Louis on the Mississippi, Kansas City and Omaha on the Missouri, and Denver farther west. Then, too, a separate rate structure governs in this area, the outgrowth largely of market competition. Though certain of the railways which were originally Granger are now much interested elsewhere, it can be safely said that even these depend largely for their prosperity upon the traffic of this section.

In this territory agricultural and animal products contribute an unusual proportion of the total tonnage; the percentage in Granger territory for both groups is almost double that of the nation as a whole. Among agricultural products, the most important items are grain and grain products, hay, and fruit and vegetables; live stock and packing-house products form the bulk of the tonnage of the other group. Manufactured products contribute a slightly larger proportion of the tonnage than for the country as a whole, and passenger business is approximately normal, but the tonnage contribution of minerals and mineral products falls especially low. During early days competition among railways was exceedingly active in this section, but interrailway agreements have reduced that type of rivalry to a minimum.

In consequence, market competition alone remains an active and important factor. However, it has been so powerful a force throughout the entire history of the development of this area that an unusual rate adjustment has resulted. The struggle between Chicago and St. Louis and Chicago and the Twin Cities on the one hand, and between Kansas City and Omaha, as well as numerous minor centers, on the other, for advantage in the buying of raw materials and the distribution of finished products constantly threatens the stability of compromise adjustments. In addition to the important points served which have already been named, there are in this area many others, among them being Rockford, Moline–Rock Island–Davenport, Cedar Rapids, Des Moines, St. Joseph, Topeka, Pueblo, Cheyenne, Lincoln, Sioux City, Sioux Falls, Butte, Great Falls, Winona, Fargo, Kenosha, Racine, and Madison.

SOUTHWESTERN TERRITORY

A second minor division of the great Western district is commonly known as the Southwestern territory and lies west

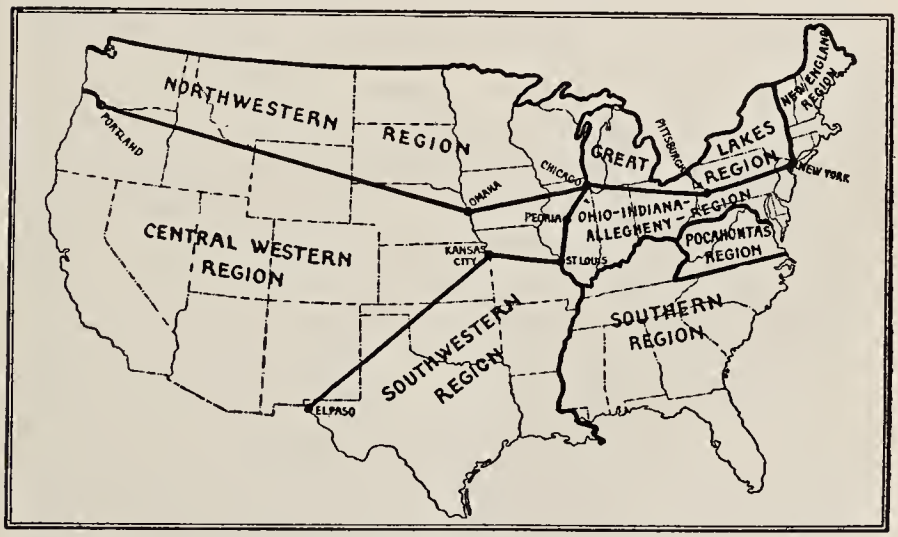

Figure 13: Subdivisions of major groups recognized by the Interstate Commerce Commission in compiling statistics

of the Mississippi and, roughly, south of a line from St. Louis through Kansas City to El Paso. Originally served almost wholly by lines built from St. Louis and Kansas City on the north and from the Gulf ports on the south, and even yet dominantly served by properties whose major interest is southwestern, this area has been entered by many other lines, particularly Granger and Transcontinental. For those lines operating almost exclusively in this territory and even for those others which are but partially interested here, St. Louis, Memphis, and New Orleans on the Mississippi, Port Arthur and Galveston on the Gulf, and El Paso and Kansas City on the west and north, are the principal outlying centers of interest. Within this area lie other important points such as Wichita, Oklahoma City, Tulsa, Fort Worth, Dallas, Wichita Falls, Waco, San Antonio, Houston, Beaumont, Shreveport, Little Rock, and Fort Smith. Here, again, a rate structure peculiar to the territory developed, and in its determination the quite unusual tariff-governing movements throughout the state of Texas has played an interesting and important part.

Among the more important properties operating almost wholly in this section are the Missouri, Kansas and Texas, the St. Louis–San Francisco, the Missouri Pacific, the St. Louis Southwestern, and the Kansas City Southern, all of which radiate from St. Louis and Kansas City, together with the Texas and Pacific, the International and Great Northern, the Gulf Coast Lines, and the Kansas City, Mexico, and Orient. The Southern Pacific has a large mileage in this section also, as have the Santa Fe and the Rock Island. Agricultural products furnish a relatively heavy proportion of the traffic of the Southwestern lines, grains and grain products, cotton, and fruits and vegetables being the important items. Manufactured goods also contribute a comparatively large tonnage, petroleum and other oils being an outstanding item. Beyond this, wide variation exists in the character of traffic; the railways operating in the southeastern portion of the territory show a heavy tonnage of forest

products; those in the northeast of mineral products, among which bituminous coal is important; while those in the western portion have a relatively large movement of live stock.

Competition among individual railways has never been especially keen in this area but, as instruments in the struggle between industrial areas and among market centers, the carriers have played an important and active rôle. The rivalry betwen the New England–Middle Atlantic industrial area and that one developing in the Middle West, between the market centers of Kansas City and St. Louis, between those northern gateways and the Gulf ports on the one hand and river ports such as Memphis on the other, between the Louisiana jobbing centers and those of Texas, and among the almost innumerable distributing points, large and small, throughout Texas, offers to the carriers a difficult problem indeed. With time, the situation has become increasingly complex, and doubtless both industrial and market competition will remain a disturbing factor in this section for many years to come.

TRANSCONTINENTAL TERRITORY

The third minor area within the Western district is known as Transcontinental territory and includes that great expanse of country to the west of the Granger and Southwestern districts. The mileage in this territory is largely of a transcontinental character as the term has come to be used, interest centering primarily in Los Angeles, San Francisco, Portland, and Seattle in the west and the western Gulf ports, Kansas City, Omaha, Chicago, Duluth, and Minneapolis–St. Paul in the east. In this territory, also, a peculiar rate adjustment has developed from the exigencies of water competition via Cape Horn and Panama, and from railway self-interest. In Transcontinental territory there are three groupings of lines based upon geographical location. In the northern are the Great Northern, the Northern Pacific, and the Chicago, Milwaukee and St. Paul, which serve Portland

and Puget Sound in the west, and Duluth, Minneapolis–St. Paul, and Chicago in the east. Spokane, Butte, and Helena are major intermediate points. In the central group fall the Union Pacific–Central Pacific and the Denver and Rio Grande–Western Pacific, both combinations serving San Francisco in the west, and Ogden, Salt Lake City, and Denver in the intermediate section. The eastern terminus of the Denver and Rio Grande on transcontinental movements is Denver or Pueblo, but for the Union Pacific it is Council Bluffs. In the Southern section lie two important routes also, the Santa Fe and the Southern Pacific which are, like the northern properties, through lines under single ownership. These two carriers, as transcontinentals, serve San Francisco, Los Angeles, and San Diego in the west, Phoenix and El Paso in the intermediate area. In the east, however, the Southern Pacific has its prime interest in Texas and the Gulf ports while the Santa Fe, despite a considerable Texas and Oklahoma mileage, is concerned more particularly with points between Denver and Kansas City and with business originating, or received by it from others, between Kansas City and Chicago. As will be noted from this discussion, there is considerable overlapping of the Granger and northern transcontinentals as well as of the southern transcontinentals and the Granger and Southwestern properties. Yet this overlapping is not so serious as to justify the neglect of clear lines of demarkation with respect to both physical location and traffic.

To describe traffic as a whole in Transcontinental territory is exceedingly difficult because of the wide differences among the three groups of carriers. In the case of all, however, the products of agriculture as well as animals and animal products contribute a much greater proportion of the total tonnage than for the entire United States. Lumber and lumber products also contribute heavily except for the central lines, while manufactures run above normal except for the northern group. Minerals and mineral products fall distinctly below the average proportion throughout the

entire area and passenger business is comparatively light except for the two southern properties. Among the individual items which loom large on all roads are grain and grain products and fruits and vegetables; live-stock tonnage is conspicuous in the case of the central and northern groups and oil in the south. Import and export traffic moving through this territory is another important source of revenue.

In discussing the competitive situation two facts deserve especial note. The struggle among railways which played an important rôle during earlier years has been brought under effective control and market competition in the intermediate territory has also been reduced, though it is still active among coast points and also between those points and intermediate centers. Competition between the railways and water carriers has developed rapidly, however, since the divorcement of the Southern Pacific from its boat lines which plied between Gulf ports and the Pacific Coast; increased utilization of the Panama Canal is particularly evident. This competition has been sharpened by the fact that it is largely a vehicle for industrial competition; the struggle for control of the intermediate and Pacific Coast business is exceedingly keen between those two rivals, the New England–Middle Atlantic section and that industrial area which lies west of Pittsburgh and Buffalo. Indeed, it is in connection with this transcontinental traffic that competition may be expected to function during the next few years perhaps more conspicuously and actively than in any other region.

PERMANENCE OF EXISTING TERRITORIAL GROUPINGS

Changes in economic conditions and in railway alliances, the construction of new mileage, and other factors may result in certain modifications of the territories just described. It is unlikely that such changes will shift materially the boundaries of the New England, Trunk Line, and Southern territories; extensive consolidation alone could

change points of major interest and modify rate structures which rest upon long years of experience. Boundaries in the West, however, are less definite and final and the identity of particular carriers with certain areas less fixed, as is clearly attested by the westward extension of the Santa Fe and, later, the St. Paul; by the entry of the Rock Island and the Santa Fe into Southwestern territory; and by the expansion of the Burlington into a semi-transcontinental. Traffic conditions will change greatly as time passes, particularly in the West and South; the steady shift from frontier to live stock and agriculture and from these to industry will be carefully chronicled in the tonnage of the railways. Competitive conditions will also be modified and by many factors. The development of motor-truck transportation in the more populous areas will be rapid and to this new agency will go much of the short-haul tonnage. Future policy concerning waterway development and plans for the more extensive utilization of existing routes will greatly concern the railways, too, and will alter competitive adjustments. These will be changed, also, by the development of new industrial areas and by modification in the affiliation of railways, both competitive and supplementary. And, finally, to the extent that regulative bodies exercise active control over matters of detail and of policy, competition will assume new aspects.

RAILWAY MILEAGE OF THE UNITED STATES

The magnitude of the railway system of the United States has already been suggested to the reader. That a more definite appreciation may be had of the extent and significance of this great field of enterprise, however, certain data portraying various phases will be presented. The total railway mileage of the United States at the close of 1921 was 251,176, of which 234,702 was operated by Class I companies. The total trackage exceeds that figure, however, by perhaps as much as 150,000 miles. These proper-

ties, in 1921, were owned, it would appear, by 1,756 separate corporations, but of these only 848 were engaged actively in operation. The concentration of mileage control is greater, however, than the number of proprietary or operating corporations would indicate. In fact, 185 Class I railways own more than 72% and operate almost 90% of the total mileage of the country and 30 of the largest of this group, slightly less than 3½% of the total number of active companies, operate almost 70% of that mileage. Indeed, 96% of the mileage of the United States is operated by the Class I and Class II roads, which constitute but 27% of the total number of operating properties.

RELATION OF MILEAGE TO POPULATION AND AREA

Absolute mileage figures give a less accurate representation of facts and less of true meaning, however, than one which indicates the extent of mileage development in proportion to those two significant factors, population and area. In the determination of such relative figures, the number of miles of line per 10,000 population and per 100 square miles of territory has been widely used: upon that basis

TABLE 7

MILES OF LINE PER 10,000 POPULATION AND PER 100 SQUARE MILES IN SELECTED STATES, 1920

State	Miles per 10,000 Population	Rank in U. S.	Miles per 100 Sq. Miles	Rank in U. S.
Western				
Nevada	279.05	1	1.97	48
Wyoming	99.32	2	1.98	47
Montana	92.41	3	3.47	41
New Mexico	82.48	4	2.43	46
North Dakota	82.11	5	7.57	36
Eastern				
Pennsylvania	13.25	42	25.76	3
New Jersey	7.45	45	31.30	1
Connecticut	7.25	46	20.76	6
Massachusetts	5.47	47	26.20	2
Rhode Island	3.49	48	19.78	8

Table 7 has been constructed to show the position in 1920 of certain of the states.

These figures indicate clearly that the number of miles of railway per unit of population is tremendously greater in the less densely settled areas, South, Southwest, and Transcontinental, while the mileage per unit of area tends to vary directly with density. To say what should be regarded as a satisfactory relationship is exceedingly difficult though certainly it would appear that something nearer an equality than is shown by the extremes in the table is desirable. On such basis it would appear that the areas lying between Chicago and St. Louis in the West, and New York and Baltimore on the Atlantic seaboard, are perhaps better supplied with mileage from both standpoints than any other considerable section of the United States. Ranking next are the New England states, and, following in turn, are the Southern, Granger, Southwestern, and Transcontinental territories. For the United States as a whole, 1920 shows 8.5 miles of line per 100 square miles of territory and 23.92 miles per 10,000 population.

That an accurate basis of comparison may be had be-

TABLE 8

MILES OF LINE PER 10,000 POPULATION AND PER 100 SQUARE MILES OF TERRITORY—COUNTRIES OF EUROPE [1]

Country	Miles per 10,000 Population	Last Year for Which Figures Available	Miles per 100 Sq. Miles	Last Year for Which Figures Available
Europe (as a whole)..	4.9*	1913	5.6*	1913
Germany	5.9	1917	19.0	1917
France	8.1	1913	15.3	1913
Italy	1.2	1920	9.8	1920
Belgium	7.4	1919	48.1	1919
Great Britain and Ireland	5.1	1920	19.3	1920
Spain	5.1	1919	5.0	1919
Denmark	9.0	1918	15.8	1918
Sweden	16.42	1921	5.2	1921
Norway	8.2	1921	1.6	1921
Russia (Eur.).....	3.0	1913	1.9	1913

* A weighted average.

[1] Basis of data given by Bureau of Railway News and Statistics, 1922.

tween the United States and the European countries where railway development has been carried farthest beyond our own boundaries, the figures for certain of the more important of those European countries, both with respect to population and area, are given in Table 8, the same units being employed as in the case of the United States.

MAGNITUDE OF THE RAILWAY BUSINESS AS MEASURED BY EQUIPMENT UTILIZED AND MONEYS HANDLED

The railway business is one of great magnitude when measured in terms of equipment and of moneys involved. In 1921, the railways of the United States had in service 69,122 locomotives, 2,408,597 freight-cars, and 56,950 passenger cars. Of the locomotives 64,949 were in the service of Class I carriers and these had a total tractive capacity of 2,385,469,940 pounds, an average of 36,935 pounds per locomotive. Of the freight-cars in service a slightly higher percentage than of locomotives were owned by Class I railways, and these cars had a total capacity of 98,504,017 tons, an average of 42.5 tons per car. In 1922, the investment accounts and current assets of Class I properties alone totaled $23,366,976,787, and in 1921 the gross outstanding capitalization for all railways was $22,291,635,792, with a net figure, after deducting railway-owned securities, of

TABLE 9

CONDENSED INCOME ACCOUNT—CLASS I RAILWAYS, 1920-1922 [1]

Item	1922	1921	1920
Railway Operating Revenues....	$5,559,092,708	$5,516,556,455	$6,178,438,459
Railway Operating Expenses....	4,414,522,334	4,562,668,302	5,827,591,146
Net from Railway Operations...	1,144,570,374	953,888,153	350,847,313
Railway Tax Accruals.....	301,034,923	275,882,150	272,061,453
Uncollectible Railway Revenues.	1,462,522	1,840,863	1,311,617
Railway Operating Income.....	842,072,929	676,165,140	77,474,243
Miscellaneous Operating Income.	302,302,603	7,234,100	60,247,341*
Net Railway Operating Income.	842,375,532	683,399,240	17,226,902
Total Non-Operating Income....	349,299,063	453,254,961	1,053,807,031*
Gross Income	1,191,674,595	1,136,654,201	1,071,033,933*
Deductions from Gross Income	820,418,262	823,154,438	640,515,977*
Net Income	371,256,333	313,499,763	430,517,956

* Bureau of Railway Economics.

[1] *I. C. C. Statistics of Rys.* except as otherwise indicated.

$17,082,875,993. The financial magnitude of the railway business is shown by annual operating revenues and expenses, also. Those figures, together with financial results, for the years 1920-1922, inclusive, are set forth in Table 9 on the preceding page. Though operating revenues reached the enormous figure of more than $6,000,000,000 in 1920, the highest in American railway history, prior to 1923, this huge sum was so depleted by abnormal railway operating expenses that, when accounts were finally balanced for all Class I carriers, net operating results were the worst in the entire experience of those properties. Even 1921, a year of light traffic, yielded a greater net.

THE RAILWAY AS AN EMPLOYER OF LABOR

Another factor which shows the significance of the railway industry is the extent of the employment of labor in that field. For Class I railways the total number of persons directly employed, the average number of employees per hundred miles of line, and the total compensation paid for the services of labor in 1912 and 1919-1922 appear below.

TABLE 10

EMPLOYMENT AND LABOR COST DATA—CLASS I RAILWAYS, FOR THE YEARS 1912 AND 1919-1922

Item	1922	1921	1920	1919	1912
Average Number of Employees	1,627,120	1,659,513	2,022,832	1,908,164	1,642,119
Per 100 Miles of Line	693	710	862	816	746
Total Compensation (in millions of dollars)	2,640	2,765	3,682	2,828	1,168

In 1919 railway labor was compensated for almost 4,500,000,000 service-hours and more than 72,000,000 days in addition, the average compensation being $0.553 per hour for hour service and $5.124 per day for day work. In 1920, the peak year in the utilization of labor by the carriers was reached: almost 4,830,000,000 service-hours and more than 77,000,000 days of labor were rendered at an average cost of $0.664 per hour and $6.177 per day. In 1921, the number

of service-hours declined to little more than 75% and the number of days of labor utilized to about 70% of the total for the year preceding, compensation per hour and per day for the six months ending December 31, 1921, being $0.596 and $7.454 respectively. In 1922, the number of service-hours increased to slightly more than 4,000,000,000, while the total days of labor declined further, to 37,780,000. In 1920, when statistics are given for smaller groups of workers, the largest sum going to any single group, a little less than $604,000,000, was received by those employees concerned directly with the movement of trains—engineers, conductors, trainmen, and firemen. Those listed as clerks receiving $900 per annum and upwards received slightly more than $387,000,000, and to section men was paid approximately $243,000,000. It is interesting to note also that those receiving $3,000 and upwards, the "official group" so frequently held at fault for high rates because of their allegedly exorbitant salaries, were paid during 1920 but $78,380,000, or less than 2% of the total amount expended for human effort in the rendition of transportation service.

THE RAILWAY SERVICE

As a final indication of the significance of the railway industry in modern economic life, certain data concerning the service rendered are in point. In Table 11 appear figures showing the magnitude of the freight service.

TABLE 11

FREIGHT SERVICE STATISTICS—CLASS I RAILWAYS—FOR THE YEARS 1912 AND 1919-1922

Item	1922	1921	1920	1919	1912
Tonnage Originated (in millions)	1,024	1,940	1,255	1,096	927
Ton-Miles (in millions)	339,285	306,840	410,306	364,293	259,982
Average Rate per Ton-Mile (in cents)	1.177	1.275	1.052	.973	.73

Of the ton-miles of service rendered in 1922, the carriers of the Eastern district contributed 44%, the Southern, 20%,

and the Western, 36%. In 1912 and during the four years ending with 1922, the various groups into which the Interstate Commerce Commission classifies tonnage contributed to the total tonnage originated as is indicated in the following table.

TABLE 12

PERCENTAGES OF TOTAL FREIGHT CONTRIBUTED BY VARIOUS GROUPS INTO WHICH TONNAGE IS DIVIDED BY THE INTERSTATE COMMERCE COMMISSION, 1912 AND 1919-1922—CLASS I RAILWAYS

Year	Total	Agricultural Products	Animals and Animal Products	Products of Mines	Products of Forests	Mfgd. Goods and Misc.	L. C. L. Mdse.
1922	100	11	2	52	9	22*	4
1921	100	13	3	52	9	18*	5
1920	100	9	2	57	8	20*	4
1919	100	11	3	54	9	15	8*
1912†	100	9	2	57	10	14	8*

* Includes miscellaneous. † All operating roads.

The magnitude of the passenger service rendered by the railways is clearly shown in the following table.

TABLE 13

PASSENGER TRAFFIC—CLASS I RAILWAYS, FOR THE YEARS 1912 AND 1919-1922

Item	1922	1921	1920	1919	1912
Number Revenue Passengers (in millions)	967	1,035	1,235	1,178	939
Number Passenger-Miles (in millions)	35,470	37,312	46,848	46,358	32,371
Average Rate Per Passenger-Mile (in cents)	3.027	3.086	2.745	2.54	1.978

To the passenger-miles shown for 1922 the Eastern district contributed 51%, the Southern district, 14%, and the Western, 35%, though the contributions to the number of passengers were 66, 11, and 23%, respectively.

Upon the data just presented relative to the freight and passenger traffic of the American railways many interesting observations might be made. The limitations of space, however, require that most of these observations be left to

the reader, though several justify mention in passing. The increase shown in the average rate per ton-mile is somewhat greater than that per passenger-mile, both during recent years and since 1912, a fact due in part to the elimination or marked restriction of the movement of certain low-grade tonnage by the imposition of heavier charges during recent years. The decline in both the number of passengers carried and the total passenger-miles in 1922 in the face of an increasing freight business is peculiar, though perhaps explained partially by the increasing use of the automobile in the movement of persons. The constant proportion which certain types of tonnage contribute to the total as well as the manner in which certain other types vary with general business conditions is rather strikingly shown, as is also the much more rapid increase in ton-miles than in tonnage originated during the past decade.

VITAL IMPORTANCE OF THE RAILWAY

The importance of the railway, the history of which has been told in preceding chapters and the significance of which in American economic life has been indicated by the facts immediately preceding, cannot easily be exaggerated in a consideration of the development of our material resources, past and future. A Russian economist recently attributed America's phenomenal economic progress to the rapid construction of railway mileage into new areas awaiting development and sought to show that this forward movement has been, and may be expected to continue, in direct proportion to railway expansion.[1] It is easy to confuse cause and effect, to explain economic progress in terms of railway building when that building was the consequence of development, yet it is a truism that, without satisfactory transportation, economic and social progress alike are almost imperceptible. Until Russia, Siberia, China and, indeed, the numberless newer and less known areas in South America

[1] Goldstein, J. M., *Railway Age*, vol. 71, p. 875.

and Africa are pierced and gridironed by the railway or by some equally effective agency of transportation, notable progress will be impossible. In America, thousands of miles of railway have been built into the great uninhabited places and have beckoned the strong-hearted and the adventurous to follow. That they followed in great numbers and to an effective purpose is attested by the striking utilization of our natural resources and by the appearance, within the span of a few decades, of great states and populous cities in the now almost conquered West. The railways have been of inestimable value in the past; upon their steady growth, or upon the service of a worthy successor which has not yet appeared, rests largely the continuance of that economic progress which has distinguished the century of railway development now closing. The improvement and extension of the agencies of transportation is vital to future progress, economic, social, political, and even intellectual.

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X

OWNERSHIP GROUPINGS

Growth of ownership groupings. Recession of movement toward consolidation. Important ownership groupings: Vanderbilt system; history and status of the Pennsylvania lines; origin and prospect of the Morgan group; growth of the Hill system and its successful record; the Union Pacific system and Edward H. Harriman. Minor ownership groupings; the New Haven; the Missouri Pacific and Western Pacific–Denver and Rio Grande Western; the Van Sweringen system; the Canadian groups. Individual stock ownership as a basis of unity of action. Broken ownership groupings—the "Gould Dream"; the Rock Island–Frisco alliance; the New Haven and Hawley systems. Important independent properties: Santa Fe, St. Paul, and Rock Island. Distribution of railway shares. Concentration more apparent than real. Tendency in distribution of railway shares.

Though the territorial grouping of American railways, major and minor, is both of interest and of service, the grouping upon the basis of dominant financial control has commanded more wide-spread public interest. The development of ownership groupings extends over almost three quarters of a century, the first movement appearing during the late forties and early fifties in the linear consolidation of numerous short and independent properties. As a result of this linear consolidation and of the extension of other properties, competition developed to the point where it threatened the financial stability of even the stronger roads. However, informal agreements failed to stabilize conditions, the pool was prohibited, and the formal rate agreement outlawed by legislative action and judicial decision. Consolidation in one guise or another appeared, therefore, to be the one remaining solution of the difficulty. This movement toward the consolidation of properties was a consequence, too, of the desire to effect certain economies through the closer coordination of properties and of the eagerness of promoters and banking interests to reap that financial har-

vest which consolidation movements often ripen. This unification of interests was accomplished by various means; in certain instances railways were merged, in others stock ownership was the method employed. Such ownership in some instances was the result of the purchase of the stock of one railway by another, in others of large stock holdings in several railways by individuals closely associated or by a holding company. A third important method used, most common under conditions of complete stock ownership, was the lease. In other cases, unity of interest was accomplished without any considerable identity of financial control through the interlocking directorates which existed so widely during the heyday of consolidation and were eliminated effectively only by the passage of the Esch-Cummins Act.

This movement toward consolidation or identity of interest on the part of both competitive and supplementary properties, discernible for many years prior to the nineties, flowered during those years of reorganization and reconstruction which intervened between the panic of 1893 and the minor depression of 1903. During this period a very close integration of all major properties in Trunk Line territory was accomplished, stock ownership and the interlocking directorate being the means generally employed. In the South a similar situation resulted from the dominant position gained by the Morgan group in three of the major properties operating in that section and of the formation of a working alliance between the Morgan and other important interests. In the West four important groupings appeared, dominated by Hill, by Harriman, by the Goulds, and by the Reid-Moore-Yoakum interests, and these groupings largely controlled the mileage of that district; railways not operated by the "big four" cooperated closely.

RECESSION OF CONSOLIDATION MOVEMENT

Between 1903 and the panic of 1907 it became clearly evident, however, that consolidation had already reached

flood tide and, for a period at least, was destined to recede. This recession was due, primarily, to two facts: the financial instability of certain of the consolidations and the illegality under the interpretation of existing statutes of certain others. The almost inconceivable financial recklessness of the New Haven management, overreaching by the Goulds, and the combination of plundering by insiders with the inherent economic weakness of the Rock Island combination, soon drove these groups upon the rocks of financial disaster. It was legal action, however, that broke up the Northern Securities Company under the shelter of which Hill and Harriman undoubtedly would have come to control a great part of the mileage of the Western district. It was legal action, also, that compelled the dissolution of the Southern Pacific–Union Pacific organization and the fear of such interference played an important part in the "unscrambling" of interests in Trunk Line territory. Even yet, the consolidation of competitive lines is regarded unfavorably by both public opinion and legal authority, but the unification of supplementary and feeder lines has more recently gained the support of the former and has won the acquiescence of the latter, as is shown by certain steps which have been taken of late, notably the dismissal of action to force a separation of the Central Pacific from the Southern Pacific. Indeed, not only is there a growing tendency to extend control over supplementary properties, but the carriers controlling these smaller leased lines are also endeavoring to simplify corporate organization by merging them, substituting direct ownership by the parent organization. This is exemplified by the gradual simplification of the corporate structure of the Pennsylvania and of the New York Central as well as the more recent steps in the direction of the consolidation of the Van Sweringen properties and of the North Western and Omaha lines. The extent of the influence of the present voluntary consolidation provision of the Esch-Cummins Act upon railway groupings is problematical, though it is certain that it will stimulate a study of the

problem and will tend to revive speculative interest in railway shares among possessors of funds.

VANDERBILT SYSTEM

One of the most important of the existing ownership groups is that controlled by the Vanderbilt interests. This group, which comprises approximately 23,250 miles, is composed essentially of the New York Central and the Chicago and North Western, with their subsidiaries, the only clearly separate property being the Western Maryland. Among the more important subsidiaries of the New York Central are the Michigan Central, the Cleveland, Cincinnati, Chicago and St. Louis, the Pittsburgh and Lake Erie, the Toledo and Ohio Central, the Cincinnati Northern, and the Kanawha and Michigan, together with two non-operating companies, the Boston and Albany, and the West Shore. The only important subsidiary of the North Western is the Chicago, St. Paul, Minneapolis and Omaha. With the exception of the North Western properties, this group lies in Trunk Line territory and serves a populous and industrialized area, though the Granger mileage gridirons perhaps the most highly developed and prosperous portion of that territory. Control of these strong railways lies with Vanderbilt interests by virtue of their large stock holdings in the three distinct properties comprising the group. The growth of this system has been normal in every sense; at no time has an ambitious program led those in control to imperil the fundamental soundness of the entire structure. Throughout its long history, this group of properties has been among the soundest financially and, from the standpoint both of management and of territories served, it has a promising future.

THE PENNSYLVANIA LINES

A second important ownership grouping is that known as the Pennsylvania, which is dominated by the railway com-

pany of that name. This system of more than 25,750 miles lies largely in Trunk Line territory as does the Vanderbilt group, but, unlike that group, the remainder of its mileage is disconnected and serves quite another section of the United States. Subsidiary to the Pennsylvania Railroad itself there are, among others, the Long Island and the West Jersey and Seashore which are active operating companies, and the Pittsburgh, Cincinnati, Chicago and St. Louis, the Pittsburgh, Fort Wayne and Chicago, the Philadelphia, Baltimore and Washington, and the Grand Rapids and Indiana which appear as lessor companies. The Toledo, Peoria and Western is jointly owned with the Chicago, Burlington and Quincy. Beside controlling these properties the Pennsylvania has an important voice through stock ownership in the management of the Norfolk and Western in Trunk Line territory, and of the Southern Pacific, a Southwestern-Transcontinental line which, in turn, owns the Northwestern Pacific jointly with the Santa Fe, in addition to its direct subsidiaries. Control in this group rests upon stock ownership, but, in contrast with the Vanderbilt system, that ownership lies with a railway company which possesses the largest number of stockholders of any railway in the United States. It might perhaps well be added, however, that the dominant group cooperates somewhat closely with the Morgan banking interests. This property has been, like the Vanderbilt system, one of slow development and, with the exception of the acquisition of a controlling interest in the Southern Pacific, has followed the normal course of growth. This acquisition represents an effort of the Pennsylvania to avoid legal complications and resulted from exchanging Baltimore and Ohio stock with the Union Pacific for a large block of Southern Pacific stock of which the Union Pacific had been ordered to divest itself by the courts. The Pennsylvania system is financially strong and has been fortunate in commanding the services of an unusually capable line of leaders, among whom appear some of America's greatest railway geniuses. But not alone is

the property strong today; the rich territory served by it and its important subsidiary in the Southwest promises increasing strength and stability in the future. The Pennsylvania system is one of the nation's best.

THE MORGAN GROUP

A third important ownership grouping, with slightly more than 27,700 miles of railway, is that dominated by the Morgan banking interests and known as the Morgan group. Important among the properties controlled by this interest are the Erie, with its subsidiary the Chicago and Erie, lying in Trunk Line territory, the Chicago Great Western in Granger territory, and a great network of lines in Southern territory which totals more than half of the entire mileage in that section. In this Southern group are the Southern and its subsidiaries, important among which are the Mobile and Ohio and the Cincinnati, New Orleans and Texas Pacific; and the Atlantic Coast Line with its important subsidiaries, the Georgia Railroad and the Louisville and Nashville. The last named controls, in turn, the Nashville, Chattanooga and St. Louis and the Louisville, Henderson and St. Louis. Another property belonging to the Morgan group is the Chicago, Indianapolis and Louisville, or Monon, which is held jointly by the Southern and the Louisville and Nashville to provide entrance into Chicago. Control of these properties is less easy to describe than in the case of the two preceding groups, domination resting in part upon the service of the Morgan interests as bankers, in part upon a capacity for the successful direction of railway properties which they have evidenced. In contrast with the Vanderbilt and Pennsylvania lines the Morgan system represents, in no sense, the natural development of a parent property. Instead, it is the result of "picking up" properties at opportune times, and noteworthy success later in reorganizing them upon a more efficient basis, in so far as the situation required such action. Of the individual lines making up this system the

Erie has long been a weak property and the Great Western has never developed strength, and this despite the fact that both serve splendid territories. Furthermore, the immediate future of both is dubious. The situation in the South, however, is quite different. Both the Atlantic Coast Line and the Louisville and Nashville are prosperous properties and should maintain their high standing in the future while the Southern, although not financially robust in years past, today gives splendid promise. Indeed, the prospects of the entire Morgan mileage in the South are doubly encouraging; that section is experiencing rapid development and the Morgan properties exercise a large degree of control over southern traffic. Although loud protest has been voiced against banker management of railways, it must be admitted that Morgan control, barring the weird operations which characterized the New Haven endeavor to monopolize New England transportation, has been sane and constructive in character.

THE HILL SYSTEM

A fourth ownership grouping of lines which commands attention is that which is widely known as the "Hill system," perhaps now more accurately termed the Hill-Morgan group, since Morgan and Company, closely associated with Hill during his lifetime, has participated more actively in the management of the properties during late years. This group comprises almost 28,300 miles of line and includes four major properties with their subsidiaries, the Northern Pacific, the Great Northern, the Chicago, Burlington and Quincy, and the Colorado and Southern. The development of this system is of especial interest to the student for at least two reasons: it shows so clearly the unusual opportunity which America offers to those of constructive ability and it illustrates so well the development and realization of a great plan, step by step. Hill's first interest in American transportation came while he worked as stevedore and clerk

in the handling of Mississippi River traffic on the St. Paul docks. His first venture into the railway field was to take over a then unpromising land-grant project, the St. Paul and Pacific Railroad. This, Hill completed and placed upon a sound financial footing. Gradually, with his eyes upon the Pacific, properties dominated by him were extended until, through the Great Northern, he was in control of a new transcontinental railway. Within a comparatively few years the bankruptcy of the Northern Pacific during the panic of 1893 afforded the "Empire Builder" an awaited opportunity to extend his control over this rival line. The reorganization of the latter property, however, had cost it the road which gave entrance into Chicago, the Wisconsin Central having been cut adrift. Ill-content to use permanently an independent property between the Twin Cities and Chicago, Hill secured control in 1901 of the Chicago, Burlington and Quincy. As a result of this step Hill and Harriman grappled in one of the most spectacular struggles for the control of a railway property that America has witnessed, a struggle from which Hill emerged as victor. In consequence of that struggle, with its resultant compromise, the Northern Securities Company was organized, a company which received earlier mention in connection with the legal efforts of the government to block the consolidation of properties. The success of the government in this attack, however, in nowise lessened the unity of interest which Hill had established between the Great Northern and the Northern Pacific. The fourth important property added to this group was the Colorado and Southern, the control of which was purchased by the Burlington to give the Hill interests direct access to the South and particularly to the southern cotton traffic in which Hill was interested as an important item in the development of trade with the Orient. It is said that Hill had desired to gain control of the Illinois Central but, losing to Harriman at that point, countered by the purchase of a controlling interest in the Colorado and Southern.

The record of properties under Hill management has been an unusually happy one. Although the Great Northern and the Northern Pacific operated in early years through a territory which was ill suited to support such extensive mileage, developmental and constructive work, which won for Hill the deserved title of "Empire Builder," has made those properties relatively strong and stable. The Burlington has always been a well-managed property with high earnings which were further augmented by its affiliation with the Hill interests, while the Colorado and Southern, exceedingly weak and unpromising when acquired, has, through traffic affiliation with the Hill lines and through the gains resulting from Hill management, developed into a sound property. Conservatively managed, but with an eye always upon future opportunities, this system should occupy an increasingly important place among the railway groups of the country.

THE UNION PACIFIC LINES

A fifth and the last of the great ownership groupings of American railways is that headed by the Union Pacific, known also by the name of its genius, Harriman. This group of lines has a mileage but little short of 23,300 and includes, in addition to the Union Pacific, its closely allied subsidiaries—the Oregon Short Line, the Los Angeles and Salt Lake, the Oregon-Washington Railroad and Navigation Company, and the St. Joseph and Grand Island; the Illinois Central with its principal subsidiaries—the Central of Georgia and the Yazoo and Mississippi Valley; and the Baltimore and Ohio which was acquired through the exchange with the Pennsylvania mentioned earlier. Large blocks of stock are also held in other properties, such as the New York Central, thus establishing harmony of interest but falling short of active control. The story of the development of this system is almost as interesting as that of the Hill group, but far more spectacular. Taking over the Union Pacific after the panic of 1893 when it was rather

aptly characterized as "a right of way and a streak of rust," Harriman, who was best known to the financial world as a successful stock broker, extended his control within less than a decade over approximately 30,000 miles of railway. The most interesting fact, however, is not that Harriman, through strong banking support and the liberal use of the collateral trust mortgage bond, was able to become master of so great a mileage, but rather that, once in control of a property, its affairs were so directed as to infuse new strength almost overnight. Indeed, but one blot stands upon the record of Harriman as a constructive genius in the railway field and that was his exploitation of the Chicago and Alton. The goal toward which Harriman seemingly worked in the Southwest, where his activities were mainly in evidence, was a monopoly of transportation facilities in that section and, at the time the government made an active though belated effort to block his progress, he was well on the way; he had already become master of the Union Pacific and the Southern Pacific and was reaching out for control of the Santa Fe. Governmental action not only prevented the addition of the Santa Fe to the Harriman system but resulted later in the enforced separation of the Union and Southern Pacific lines also. Yet, among the properties with which Harriman was actively associated, there is not one but that remains even today upon a splendid financial basis, and this despite the fact that Harriman's training was that of financier rather than that of practical railway man. The future of this group appears to be as promising as its present; the Union Pacific and the Illinois Central are peculiarly well situated and late performances of the Baltimore and Ohio, a more recent acquisition, indicate its possession of recuperative powers.

MINOR OWNERSHIP GROUPINGS

In addition to the major groupings, each including upwards of 20,000 miles of railway, there are a number of

minor groupings of which passing mention should be made. One of the oldest of these in point of time is the so-called New Haven group, which lies wholly within New England territory except for the New York, Ontario and Western, and includes, in addition to that property, the Central New England, the Boston and Maine, and a half-interest, with the New York Central, in the Rutland. However, the New Haven is under judicial order to dispose of its control in the Boston and Maine, which has been held to constitute a violation of the prohibition against restraint of trade under the Sherman Act. This group, comprising something less than 5,800 miles of line, came into being as a result of the effort of the New Haven to monopolize the transportation facilities of southern and central New England, control being exercised through stock ownership. As a result of overreaching, a property which once was conspicuously strong has been wrecked financially. At present, however, its situation appears to be improving and there is promise that it will once again become as stable and prosperous as the nature of the territory served by it justifies.

A second minor group, composed of the Missouri Pacific and Texas and Pacific, but known by the name of the former, lies largely in Southwestern territory and operates a mileage of more than 9,300. This system is the remnant of a greater, the Gould, which will be discussed shortly as one of the broken systems. Although it has been many years since even the stronger of these properties, the Missouri Pacific, has shown any indication of prosperity, the elimination of Gould management in favor of another which seems determined to follow a more conservative and constructive policy, together with the rapid development of the Southwest, augurs well for the future of these properties.

A third minor group, composed of two other properties once a part of the Gould system, is the Western Pacific–Denver and Rio Grande Western, headed by the former. These properties, with a mileage of almost 3,900, lie in Colorado and westward to the Pacific coast and have had a

peculiar history. The construction of the Western Pacific was financed largely upon the basis of the guarantee of its bonds by the Denver and Rio Grande, but the unprofitable character of the new property forced it into the hands of a receiver and this, in turn, precipitated a receivership for the guarantor property. In the reorganization of the Western Pacific an eastern outlet was considered essential, and, in consequence, control of the original parent company was obtained, thus completely reversing the early relationship. These two properties, operating through a territory which promises only gradual development, have been sorely in need of affiliation with others which will permit them to share in through traffic moving over the central transcontinental route. According to the reorganization plan of the Denver and Rio Grande Western which seems likely to be approved, the Missouri Pacific will share with the Western Pacific the control of the property which links those two together. Thus a large part of the old Gould grouping bids fair to be reunited to the advantage of both the eastern and western portions.

Another and the most recent of the minor ownership groups to appear, but one which has developed rapidly, is that headed by the Van Sweringens, operating almost 5,650 miles of line which lie largely in Eastern and Southern territory. This system had as its foundation the purchase of the New York, Chicago and St. Louis, or Nickel Plate, from the New York Central in 1916. The later purchase from the same property of the Lake Erie and Western and acquisition of control of the Toledo, St. Louis and Western gave needed mileage in Indiana and Illinois. As a final step, control of the Chesapeake and Ohio, with its subsidiary, the Hocking Valley, was secured, which gave an outlet to the east coast as well as entry into a rich coal area. Although several of these properties have not a particularly happy financial history and are regarded as distinctly weak lines, their lack of strength has resulted more from inability to command capital and from lack of traffic affiliations than

from the character of the territory through which they operate. Their unification and improvement under a management which has given evidence of capacity and which seems able to command adequate funds for improvements, together with the aid of the financially sound units, the Chesapeake and Ohio and the Nickel Plate, make the future of this group of roads rather promising.[1]

THE CANADIAN GROUPS

In addition to the ownership groups which are essentially our own, there exist two others, both Canadian in affiliation. The first of these, representing properties subsidiary to the Canadian Pacific Railroad, includes the Canadian Pacific lines in Maine, the Duluth, South Shore and Atlantic, the Minneapolis, St. Paul and Sault Ste. Marie, and the Spokane and International. These properties, with a total mileage of approximately 5,450, lie in the far eastern, far western, and central portions of northern United States. They represent, in the first case, construction to the Atlantic seaboard; in the second, an effort to share in the tonnage of eastern Washington; and in the third, a desire to participate in the Minnesota-Dakota grain traffic and to secure entry into Chicago. Although a portion of this mileage is poorly situated, affiliation with the Canadian Pacific gives something of promise for even the weakest, the Duluth, South Shore and Atlantic. The Canadian National Railways, with a mileage of almost 1,900, comprise properties formerly controlled by the Grand Trunk in Trunk Line and New England territory and by the Canadian Northern in the Northwest. Important among the subsidiaries of the former are the Central Vermont and the Grand Trunk Western, while the Duluth, Winnipeg and Pacific was the only important property controlled by the Canadian Northern. Control is exercised by the Canadian National through stock

[1] Recent reports indicate that the Van Sweringens control the Erie, the Pere Marquette, and the Pittsburgh and West Virginia also.

ownership just as with the Canadian Pacific, but the nature of these properties, together with the lesser strength of the lines with which they are affiliated, gives less hope of profitable operation in the near future. Beneath certain of the lines controlled by both the Canadian systems an economic substructure must be largely inserted.

INDIVIDUAL STOCKHOLDING AND UNITY OF ACTION

Though the preceding discussion presents the definite ownership groupings now existent, it cannot be regarded as a complete statement of present interrailway relations. The truth of this statement is emphasized strongly by an examination of the lists of stockholders of important properties. Such an examination shows large individual holdings of securities, principally stocks, in supplementary and even in competing lines, a situation which, under all normal circumstances, will effectively preclude the development of sharply antagonistic policies or the appearance of dangerous competitive activity. Among the large stockholders in 1918 were Henry Frick, and William Rockefeller, both now dead, George F. Baker, J. P. Hoes, members of the Harriman, Harkness, and Huntington families, large American brokerage houses such as Bache, Oliphant, and Clews which often hold for clients, and important foreign investment groups with headquarters in London, Amsterdam, and Berlin, also the express and many American insurance companies. However, community of interest based upon such intangible relationships is advantageous to the railways only because it facilitates the elimination of hurtful competitive activities; it assists little in reducing costs, when compared with a closer unification of properties. Definite alliances under the law appear to be preferable, therefore, and deserving of encouragement in the interest of both railway and public. Such alliances the consolidation provision of the Esch-Cummins Act seeks to accomplish, though it is unlikely that early results will thus be secured.

BROKEN OWNERSHIP SYSTEMS

Interesting not only from a historical standpoint but also because of the light thrown upon the causes of railway failures, is an examination of certain of the one-time important ownership groupings which have disintegrated during the past quarter of a century. Among these none offers a more enlightening field of study than the Gould system which, in 1906, comprised approximately 19,000 miles of line. Important among the properties included in this group were the Missouri Pacific, the Wabash, the Texas and Pacific, the International and Great Northern, the St. Louis Southwestern, the Denver and Rio Grande and, later, the Wheeling and Lake Erie, the Western Maryland, and the Western Pacific. Control of these properties lay in the estate of Jay Gould and was exercised west of the Mississippi through the Missouri Pacific and the estate itself, east of the Mississippi through the Wabash. This system had its inception with the entry of Jay Gould into the railway field many years ago, and was built upon his control of the Missouri Pacific and the Wabash. In the minds of the heirs who assumed control of these properties following his death developed what has oftentimes been characterized as the "Gould Dream," the ownership and operation by a single interest of a property extending from coast to coast. To develop this dream into an actuality, however, it was necessary to bridge the gap between Salt Lake City and the Pacific Coast and between the eastern terminus of the Wabash and the Atlantic. To accomplish the former the Western Pacific was constructed, resting heavily upon the Denver and Rio Grande for financial support; to effect the latter, control of the Wheeling and Lake Erie and of the Western Maryland was secured, the gap between these two to be bridged by the so-called Wabash–Pittsburgh Terminal project. When upon the very threshold of realizing the goal set, a transcontinental railway in the fullest sense, the Gould system suffered a general collapse. The old prop-

erties had never been conservatively managed by the Goulds and, in the face of panic conditions in 1907, were unable to bear the strain thrown upon them by heavy construction costs and light traffic. One after another of the properties, beginning with the Wabash and the Western Pacific, went into the hands of receivers until finally the control of all but the St. Louis and Southwestern, a minor line, had been lost. A clearer illustration of the financial depletion of properties through failure to follow a conservative maintenance policy and of final wreckage due to overextension, cannot be found in American railway history.

THE ROCK ISLAND–FRISCO ALLIANCE

A second important broken ownership system was that dominated by the Rock Island. This group controlled approximately 15,000 miles of line and included, in addition to the property which gave it its name, the St. Louis–San Francisco and the Chicago and Eastern Illinois, together with certain minor subsidiary lines. Until a financial group, headed by Reid and Moore, newly rich from the tin-plate field, became interested in it, the Rock Island had been a conservatively managed, prosperous property, operating almost wholly in the richer portions of Granger territory. In 1901-1902, however, the "Tin-Plate Crowd" acquired a dominant interest in the property and, under their control, a policy of rapid expansion was instituted. By purchase the Rock Island was extended into Southwestern territory; control of the St. Louis–San Francisco, and, through it, of the Chicago and Eastern Illinois was obtained by the use of the collateral trust mortgage bond. Control was also secured of the Evansville and Terre Haute, later of the Chicago and Alton, and finally a fourth interest was purchased in the Lehigh Valley, perhaps with the idea of ultimately extending a line to the Atlantic seaboard. The most interesting feature of the Rock Island structure, however, was not the actual control over particular properties

but, rather, the peculiar financial structure which was evolved by the controlling group to enable them to dominate completely a large property without a commensurate investment in it. To this end the Chicago, Rock Island and Pacific *Railroad* Company was created to hold the stock of the Chicago, Rock Island and Pacific *Railway* Company and of other carrier properties. Control of the *Railroad* Company rested, in turn, with the Rock Island Company. Voting power was so restricted in the last-named corporation that the dominant group was able to dictate policies through the ownership of a majority of a relatively small block of preferred shares. Within a comparatively short time the unsound and topheavy financial structure collapsed; the securities of both holding companies became practically worthless and the railway properties controlled through them were plunged into receivership. This collapse was due to several factors, prominent among which were overcapitalization, speculative and plundering activities on the part of "insiders," and the traffic weakness of much of the newer mileage. "High finance," as it appeared in Rock Island operations and in the gutting of the New Haven, played no small part in convincing honest railway management and the public alike of the mutual advantage resulting from the public regulation of carrier financial operations.

THE NEW HAVEN AND HAWLEY SYSTEMS

Two lesser groups which have since disintegrated deserve mention also. One of these, discussed briefly earlier in the chapter, was the New Haven. In this case definite plans seem to have been made to establish monopoly control over the transportation facilities of the richer and more populous portions of New England. The execution of this plan was marked by both mismanagement and fraud, and these two factors, together with the interference of the government because of the effort to accomplish monopoly, account for its collapse. The second of the lesser groups now defunct

was that developed by Edwin Hawley. The "Hawley system" had its beginning in 1895 with acquisition of control of the Minneapolis and St. Louis. To this line were added the Iowa Central, the Missouri, Kansas and Texas, the Toledo, St. Louis and Western, and the Chicago and Alton, all of which were financially weak properties. The later purchase of control of the Chesapeake and Ohio gave indication that an effort would be made to weld this group of lines into a unified system with an eastern terminus. However, the lack of financial strength, the fact that the various lines were poorly articulated, and the heavy expenditures necessary to put much of the mileage into sound operating condition, capped by the death of Hawley himself, ended any positive movement toward unification and resulted, within a short time, in a disassociation of the constituent properties.

IMPORTANT INDEPENDENT PROPERTIES

Although thus far discussion from an ownership standpoint has been confined to more or less important groupings of lines, there are certain independent systems which are of even greater significance than any but the major ownership groups. Outstanding among these at the present time from both a physical and financial standpoint is the Atchison, Topeka and Santa Fe. This railway controls almost 11,800 miles of line and is one of the most important properties in southern Granger territory, in Southwestern territory, and in the Transcontinental field. Its development has come mainly through the construction of mileage, supplemented by the purchase of minor properties. From its inception in 1870 the property developed rapidly until, in the late eighties, it became overextended. This, together with certain minor frauds, resulted in receivership in 1889 and again in 1891. Since the latter nineties, however, the property has steadily strengthened financially while further extending its mileage, and, in consequence, it stands today as one of the most stable roads in the United States, a splendid monument to

the managerial skill of E. P. Ripley, who guided its course for more than a score of years. A second important independent property is the Chicago, Milwaukee and St. Paul with a mileage of almost 11,150. This property, in its development, has a history somewhat similar to that of the Santa Fe; begun in 1850, construction, supplemented by the purchase of short lines, has accounted for its growth. The early financial record of the St. Paul is an excellent one, but when it abandoned its position as a mere Granger property through the construction of the Puget Sound extension, it became so burdened that it has been only through skilful management that receivership has been avoided of late. At present the prospect seems somewhat brighter, but the journey back to prosperity will be both a long and a difficult one. A third property mentioned earlier in connection with the disintegrated Rock Island group, but one now operating independently, is the Chicago, Rock Island and Pacific. Begun in 1854 it now operates more than 8,000 miles of line. Prior to its experience at the hands of the Reid-Moore crowd, the Rock Island had been one of the most prosperous of the Granger lines, but by that management the property was burdened with a considerable mileage which represents promise rather than realization, and was further weakened in the territory occupied by it through unwise financial policies. The line is now going through a process of rehabilitation, therefore, but the promise appears good for the not distant future.

DISTRIBUTION OF RAILWAY SHARES

After discussing the ownership groupings of American railways, certain facts with respect to the distribution of railway shares will be of particular interest. It appears that in 1917 half or more of the stock of 26 of the 50 largest railways of the United States was controlled by the 20 largest stockholders, while 40% or more was so held in the case of 31. Indeed, it will be noted that 100% of the

stock of 6 railways is thus owned, while in the case of two additional properties, 95% and 99% are in the hands of such a small group. These facts, as shown in Table 14, indicate a relatively high degree of concentration of ownership.

TABLE 14

PERCENTAGE OF STOCK OF 50 LARGEST RAILWAYS IN THE UNITED STATES HELD BY 20 LARGEST STOCKHOLDERS [1]

Railroad	Percentage
Grand Trunk Western	100
Los Angeles and Salt Lake	100
Oregon Short Line	100
Oregon-Washington R. R. and Nav. Co	100
Pennsylvania Company	100
Philadelphia and Reading Railway Co	100
Chicago, Burlington and Quincy	99
Chicago, Indianapolis and Louisville	95
Pittsburgh, Cincinnati, Chicago and St. Louis Ry. Co	77
Chicago and North Western	72
Western Maryland	72
Chicago, St. Paul, Minneapolis and Omaha	68
Cleveland, Cincinnati, Chicago and St. Louis	67
Pere Marquette Railroad Co	67
West Jersey and Seashore Railroad Co	67
Seaboard Air Line	66
Minneapolis, St. Paul and Sault Ste. Marie Ry. Co	64
New York, Chicago and St. Louis Railway Co	64
Boston and Maine	62
Denver and Rio Grande Railroad Co	61
Minneapolis and St. Louis Railroad Co	60
New York, Ontario and Western Railway Co	60
St. Louis Southwestern	60
Atlantic Coast Line	58
Louisville and Nashville Railroad Co	57
Norfolk and Western Railway Co	50
Texas and Pacific Railway Co	49
Southern Railway Co	45
Missouri, Kansas and Texas System	43
Delaware, Lackawanna and Western	41
Illinois Central	41
Chicago Great Western	32
Chesapeake and Ohio Lines	29
New York Central	27
Chicago, Rock Island and Pacific	26
Erie Railroad Co	25
Southern Pacific Co	23
Great Northern Railway	20
Northern Pacific Railway Co	20
St. Louis–San Francisco Railroad Co	20

[1] *Annalist*, April 15, 1918, p. 396.

TABLE 14 (*Continued*)

Railroad	Percentage
Union Pacific	20
Baltimore and Ohio	19
Chicago, Milwaukee and St. Paul	19
Lehigh Valley Railroad Co	19
Missouri Pacific Railway Co	19
New York, New Haven and Hartford	15
Atchison, Topeka and Santa Fe	14
Delaware and Hudson Co. Railroad Dept	12
Pennsylvania Railroad Co	11
Yazoo and Mississippi Valley	10

An analysis of the situation portrayed by the preceding table tends to controvert in a rather definite way, however, the idea of concentration of ownership. Of the 31 roads of which 40% or more of the stock is controlled by the 20 largest stockholders, 24 are subsidiary properties forming either a portion of a large system or controlled by a holding company. Of those subsidiary to another railway property, the great majority are controlled by or identified with railways whose stocks are widely distributed. Indeed, of the 6 railways with 100% of their stock closely held, 3 are controlled by the Union Pacific, the stock of which is not closely held, as indicated by the table. Again, the Pennsylvania railroad, with a remarkably wide distribution of its shares, controls three properties through the ownership of 67% or more of their stock, and the New York Central, which would also show a wide distribution were it not for a block of 200,000 shares owned by the Oregon Short Line, a subsidiary of the Union Pacific, dominates four lines which fall within the zone of high concentration.

In fact, an examination of statistics relative to the ownership of railway securities shows clearly that they are not only widely held but that those holdings are also being broadened. In 1904, statistics show that 1,182 roads had 327,851 stockholders, and in 1915 the Class I and II properties alone showed a total of 626,122. At the close of 1921 the 185 Class I railways had stockholders numbering 752,967, and in 1922 that figure had increased to 777,132. In

studying the distribution of stocks of particular railways it is evident that, as securities gain strength and thereby appear to merit investment standing, wider distribution develops. In 1904, before any of these properties had attained investment standing, the number of stockholders in the Santa Fe, the Southern Pacific, the Union Pacific, and the Great Northern were, respectively, 17,823, 2,424, 14,256, and 383; in 1912 those numbers had increased to 31,728, 14,387, 21,600, and 17,841; and at the close of 1922 stood at 64,643, 58,279, 51,016, and 44,093. There appears thus an increase from 1904 to 1922 for these four roads alone of 183,145 stockholders. Even in the case of the Pennsylvania, which in 1904 enjoyed investment standing, the increase has been more than threefold, a growth of from 44,175 in 1904 to 137,429 in 1922 being chronicled. Certain it seems to be that, in the face of a gradual decline of railway credit, the *number* of those willing to invest funds in railway securities has grown rather than diminished, a fact which would make it appear that it is inability to appeal successfully to the large investor, rather than the small, which lies at the root of the credit difficulty.

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RAILWAY TRANSPORTATION

PART II

THE RAILWAY SERVICE

XI

THE RAILWAY AS A CORPORATION

The nature of the corporation. Advantages of the corporate form of organization to railway enterprise. Organization of the railway for management. Public and private corporations. The quasi-public corporation and its regulation. The problem of jurisdiction. The railway charter: its contractual nature and uniformity of provisions. Magnitude of the railway corporation. Financial interest of the public in the railways. Tendency toward large corporate units and concentration of active control. Conclusion.

In the preceding chapters the development of the American railway net has been described with primary emphasis upon physical growth. In succeeding chapters a study will be made of railway service. To better understand the relations of railway and shipper which this service occasions, it is important that more be known of the nature of the business unit through which management functions in the railway field and of the extent and nature of the grants of power which railways enjoy from government.

NATURE OF THE CORPORATION

The unit of management in railway enterprise is, without exception, the corporation. Indeed, in no other field is the corporation so characteristic as in this, the field of railway operations. Beginning as a small undertaking, the development of the railway corporation to its present great size may, in many instances, be clearly traced by a study of single properties. The corporation is variously defined. Perhaps the most widely known definition is that given by Chief Justice Marshall in the Dartmouth College case [1]— in which he declared a corporation to be "an artificial being,

[1] 4 Wheaton 518.

invisible, intangible, and existing only in contemplation of law." A somewhat more explicit definition appears in Clark and Marshall:[1] "A corporation is a body, or artificial person, consisting of one or more individuals, or sometimes an individual and other corporations, created by law and invested by the law with certain legal capacities as the capacity of succession; the capacity to sue and be sued; to make contracts; to take, hold, and convey property; to commit torts and crimes; and to do other acts, however numerous its members may be, like a single individual." When a number of persons become incorporated under authority from the state, states this same authority:[2]

> By virtue of their incorporation by the state, they become collectively an artificial person, in the eye of the law—a legal entity which, for the purpose of taking, holding, and conveying property, making contracts, suing and being sued, and carrying out the objects of the incorporation, is distinct from the members who compose it in their individual capacities. This legal entity is the corporation—a collection of individuals made by law into one body—and, as such, it has the capacity to act, through its authorized agents, like a single individual, and the capacity of succession; that is, the capacity to exist forever, or for the full period for which it was created, as precisely the same legal body, notwithstanding the death or withdrawal of members, and the coming in of new members, "in like manner as the River Thames is still the same river, though the parts which compose it are changing every instant."

ADVANTAGES OF THE CORPORATE FORM OF ORGANIZATION

In the railway field, to an even greater degree than in the industrial, the corporation has rendered an invaluable service both to the investor and to society. During the first half-century of railway development in the United States one of the outstanding characteristics of this enterprise was its speculative nature. Because of that fact it would have been exceedingly difficult to attract capital

[1] *Corporation Law*, p. 1.

[2] *Ibid.*, p. 3.

under any plan of organization except one which limited the liability of the investor to the amount which he initially put into the business. The corporation accomplished this limitation and therefore rendered particularly effective aid to pioneer construction. A second distinct advantage which the corporation enjoys in the railway field is that of continuity: because of the large investment and because of the very nature of the enterprise it is essential that the railway business unit have an uninterrupted life. Then, too, the nature of the investment in railways is of such character that easy transferability of interests is a factor of considerable importance. This ready transfer is made possible by the corporate form of organization with its accompanying issues of securities of various types. The large enterprise can be more efficiently managed, also, when organized as a corporation than it can be under any plan of management which necessitates the direct participation of a considerable number of interested parties in the current affairs of the business. And, finally, the corporation has proved its worth to railway undertakings in a peculiar degree because this form of organization has made available vast sums of capital which otherwise would not have been placed at the disposal of the railways. This has resulted not only from the fact that individuals will purchase shares of stocks or bonds in a corporation when they would refuse to participate as partners in the same enterprise, but also from the fact that, through the issuance of a number of different types of securities, the railway has been able to interest those who stress safety as well as those who demand a high return. So striking have been the advantages resulting from the use of the corporate form of organization that it is difficult to conceive of adequate railway development in the United States under private direction had this or a similar type of business unit not been available. And these advantages have steadily increased as the typical railway unit has developed from the small, locally financed undertaking to the gigantic enterprise which is characteristic of the railway field today.

ORGANIZATION OF THE RAILWAY FOR MANAGEMENT

The organization of the railway corporation for management differs little from that of large industrial or commercial enterprises. The stockholder, as entrepreneur, bears the major risks of the enterprise and possesses residual powers of management. Obviously, however, the active direction of the property must rest in the hands of men who are more cognizant of the needs of the business and who are able to give its problems a less divided attention than the average holder of shares. To that end a board of directors is selected by the stockholders and by that board are chosen, in turn, an executive committee to supervise, and a staff of officers to actively direct, the work of the corporation. The duties and functions of each of these groups to whom managerial power is delegated will be presented in some detail in the following chapter; suffice it to say here that, although the stockholder *in theory* manages the property, *in fact* his control over those who wield authority is so remote as to make practice diverge widely from the intent of the corporate plan. Yet how escape divergence in the case of great corporations, whose stockholders are numbered by thousands and have among them not only the citizens of many states but the citizens of many lands?

TYPES OF CORPORATIONS

Corporations are classified under three heads, public, private, and quasi-public. To quote from Clark and Marshall:[1]

Public and Private Corporations. The rules of law which apply to public corporations are very different in many respects from those which apply to private corporations, and, therefore, the distinction is important. For example, the property of a public corporation is not taxable, while that of a private corporation is. A public corporation, being a mere instrument or means of government, can be created or dissolved, or its charter amended, by the law-making power at will, and without the

[1] *Corporation Law,* p. 47.

consent of the members who compose it, while a private corporation, as we shall see, cannot be created without the consent of the individuals who compose it and, when once created, cannot be dissolved or changed without their consent, unless the power to do so is reserved in its creation, or unless it has forfeited its right to corporate existence by abuse or non-use of its powers. A public corporation, it has been said, is one that is created for a political purpose, with political power, to be exercised for purposes connected with the public good in the administration of civil government. It is an instrument of the government subject to the control of the legislature, and its members are officers of the government appointed for the discharge of public duties. In other words, a public corporation is a corporation created merely for purposes of government, and a private corporation is one that is created for other purposes than those of government.

Among the corporations which are clearly public are incorporated cities, villages, and towns, commonly called municipal corporations; a turnpike corporation is a public corporation where the road is built by the state exclusively, and the corporation is created for the purpose of maintaining and managing it, and is composed of public officers only. It is otherwise, however, if the state merely holds some of the stock in a turnpike corporation. A bank is not a public corporation merely because the state uses it as a depository for public funds, or because the state owns part of the capital stock. But it seems that it is otherwise if the bank is exclusively owned and controlled by the state. A state board of agriculture, or agricultural society, composed of private individuals, and incorporated for the purpose of promoting agriculture, holding agricultural fairs, and so on, is not a public corporation, though the state has made an appropriation of money for its benefit. And the same is true of an institute incorporated for the promotion of the mechanic arts, holding its property in its own right, and managing its business according to its discretion, within the limitations of its charter, free from control by the state, although an act of legislature renewing its charter may grant it an annual appropriation. Hospitals, colleges, universities, academies, and other educational corporations are public if they are exclusively endowed and controlled by the state, but not otherwise. State universities, so-called, or other educational institutions, or hospitals and asylums founded by private donors for the purposes of general charity, are not public corporations merely because the state has made an appropriation or donation of money or land for their benefit,

or because, in doing so, it has imposed conditions for the benefit of the public, or reserved some power of control over the conduct of their affairs.

The third type of corporation which is of particular interest to the student of railways is that commonly termed quasi-public. To cite Clark and Marshall again. "Some private corporations are organized for a purpose which is of a public nature or, rather, for a purpose which renders them particularly beneficial, if not necessary, to the public and are, for this reason, called quasi-public corporations; and because of their quasi-public nature they are sometimes given rights and privileges that are not granted to other corporations, as the right of eminent domain. For example, railroad companies engaged in the common carriage of passengers and goods are quasi-public corporations in this sense. . . . These corporations, though because of their objects they are called quasi-public, are created for private gain and are mere private corporations just as a banking company or insurance company is a mere private corporation."[1] In ownership, then, this third, or mixed, type of corporation is clearly private, but, in the responsibility which it bears to its patrons, it is public.

Upon this quasi-public character of the railway industry rests the entire structure of regulation which has developed gradually, until today the management of railway properties, even to many minor details, must be shared with public agencies. Out of this regulation, it may be added, have grown many complicated problems of an administrative and financial nature, and also many exceedingly nice problems of law and of jurisdiction. Public control has also made the "railway problem" loom large in American political life. On the one hand, the fear of such control often resulted during years past in the shameful perversion of public government to private ends—in the control from time to time by purchase or guile of legislature, court, and executive. This perversion, in turn, caused the accumulation of

[1] *Corporation Law*, p. 49.

a tremendous and righteous public wrath that wreaked havoc upon the just and the unjust alike, once that public overcame the obstructions to its will. On the other hand, the "soulless railroad corporation" served splendidly during long years as an object of indiscriminate attack for self-confessed statesman and demagogue alike, in their struggles to gain political preferment and power. And, it might be added, all delineations of evil in the railway field have not even yet an altruistic purpose or, when judged from the standpoint of sound public policy, a constructive goal.

REGULATION OF QUASI-PUBLIC CORPORATIONS

During the first 40 years of railway development in the United States the private character of the railway business was not questioned. The American public was still dominated by the *laissez-faire* philosophy and, beyond this, the need for additional transportation service was so much more evident than were the abuses of existing agencies that emphasis was placed wholly upon additional facilities; effective regulation of existing properties was given no thought. Due to causes which will be considered in detail later, the demand for effective regulation first appeared in the late sixties and seventies. That the railways should challenge this effort to bring a great industry under control was quite natural. The very power of the government to impose hampering restrictions upon private initiative and to designate certain enterprises as "burdened with the public interest" was challenged, and it was not until the decision of the United States Supreme Court in *Munn* v. *Illinois*,[1] rendered in 1877, and in other cases following, that the constitutional right of the government to regulate certain agencies, including railway corporations, was fully recognized. The basis of such regulation rests, of course, upon the protection of public interest and, though efforts have been made to limit this power and to circumscribe its use

[1] 94 U. S. 113.

since that noteworthy decision, no attack has succeeded in challenging successfully the inherent power of the public thus to act.

In the regulation of all quasi-public corporations it is now recognized that certain powers inhere in the legislature as directly representing public will, but that such legislative power must be exercised within the limits fixed by the Constitution as interpreted by the courts. The legislative function is essentially that of the prescription of services and fixing of rates—in short, that of positive regulation. Indeed, it is only by the legislative body that definite standards may be determined. This branch of government may act in either of two ways in the discharge of its powers: it may enact specific legislation prescribing rates, fares, classifications, and even service, or it may enact general laws requiring reasonable rates, fares, and so forth, and provide for an administrative body or commission to determine what is reasonable in a particular case. Of these two methods, the latter has proved the more efficient, with the result that railway regulation seldom proceeds today from direct and specific legislative enactment.

In the absence of legislation the courts may exercise control over the railway upon the basis of the common law, which requires that common carriers render an adequate service at reasonable rates without discrimination. Such control is wholly negative in character and has, in consequence, proved inadequate to protect public interest. A specific rate, service, or practice of an objectionable character may be eliminated by judicial action but it is impossible thus to initiate and enforce any rate, service, or practice which has been found reasonable by the court. If positive regulations have been laid down by legislative action the judicial function is twofold: the court examines such regulations in the light of constitutional guarantees and, if not held to be in violation of one or another of those safeguards, it interprets those regulations in their application.

THE PROBLEM OF JURISDICTION

The dual character of our government, state and federal, gives rise to difficult jurisdictional problems. Under the Federal Constitution the state retained jurisdiction over all commerce moving within its boundaries, while to the Federal Government has been delegated the control of all interstate and foreign commerce. Such a definite statement appears to leave little ground for dispute, yet an examination of the situation historically proves quite otherwise. The question as to what was to be regarded as intrastate and what as interstate commerce was settled with little difficulty, but the determination of the boundary line between the fields of state and of federal control has been one of the most difficult legal problems with which legislative bodies and courts have been faced during the past half-century. Though a detailed delineation of the struggle between state and federal governments during that period cannot be given here, it is well to note that the scope of state authority has swung from almost one extreme to another—from the power to control interstate commerce in the absence of federal action [1] to the denial of exclusive control over purely intrastate traffic if, in the exercise of such control, interstate commerce is prejudiced.[2] A more complete presentation of this regulatory side of the railway industry is given in Chapter XXVII, in which a study of the general problem of public control is undertaken.

THE RAILWAY CHARTER

As has been indicated, the corporation is the sole type of business unit found in the railway field. This corporation lives because of the charter granted to it and possesses only such privileges and powers as are enumerated in that charter. As defined by Cleveland and Powell,[3] the charter "is

[1] 94 U. S. 164.

[2] 234 U. S. 342.

[3] *Railroad Promotion and Capitalization in the United States*, p. 155.

a formal grant by the state to persons associated for the purposes of exercising powers and enjoying privileges which they could not otherwise enjoy." In this country, with a dual system of government, charters have been granted by both the states and the Federal Government. However, so few charters have been granted to railways by the latter that, for practical purposes, we may regard the state as the source of the railway charter. These instruments were granted to railway corporations in early years by specific act of the legislature, just as they were to other corporate undertakings, but this method proved quite unsatisfactory. The consideration of charter applications consumed the time of legislative bodies which was needed for other matters, and the launching of a corporate enterprise was necessarily delayed if the legislature was not in session. Even more objectionable was this policy of granting special charters because of the corruption which accompanied the promotion of many projects. To escape the difficulties growing out of incorporation under specific act, a movement toward the enactment of general statutes governing incorporation gained such great headway that, during the past half-century, few charters have been granted except under such statutes. This policy of incorporation under general statutes not only eliminated the objections which have been indicated but, to quote Meyer,[1] "The greatest change brought about by the transition from special charters to incorporation under general laws constituted uniformity. Almost infinite variety in charter provisions was common during the early period of special legislation under general laws. . . . A certain degree of uniformity was brought about from the very first."

The early railway charter is of interest today primarily because it gives evidence of a peculiar conception of the nature of railway enterprise. These instruments were patterned closely after the older turnpike charters and therefore contained many provisions which now seem very

[1] *Railway Regulation: Report Industrial Commission, IX,* p. 920.

strange. Cleveland and Powell in *Railroad Promotion and Capitalization* [1] declare: "As the first railroads were regarded as improved highways, their charters in many cases conferred the right to collect toll for the use of the road and an additional charge for conducting transportation when the equipment of the company was used. Thus the charter of the Boston and Providence gave the right to build railroads which might be used by any persons who would comply with the necessary regulations and authorized the directors 'to erect toll houses, establish gates, appoint toll gatherers, and demand toll upon the road.' A step in advance was taken by the charter of the Maine, New Hampshire and Massachusetts Railroad, which gave the corporation the privilege of buying cars and locomotives for the transportation of passengers and freight." Characteristic of early charter limitations were three provisions, of which two were adopted essentially from English practice. The first of these fixed maximum tolls, the second placed certain limitations upon profits. A third provision of a peculiarly American nature, which found its way into numerous charters, was intended to secure at all times for citizens of the state granting a charter, treatment equal to that accorded by the carrier to the citizens of other states served by it. Among various powers extended by the early charter that one universally found was the grant of the right of eminent domain. Among the more important of other interesting provisions which occasionally appeared were those giving assurance of protection against competition and exemption from taxation, usually for a specified number of years.

CONTRACTUAL NATURE OF RAILWAY CHARTERS

During the early years of railway development many special charters were granted containing provisions of such number and character as to make those charters inimical to public interest. This was particularly apparent after

[1] Page 160.

the decision of the United States Supreme Court in the Dartmouth College case,[1] in which it was held that even a charter granted by the English monarch during colonial days was a definite contract and not to be altered by public act except with the consent of the grantee. The too generous provisions of many of these early charters would undoubtedly have proved most burdensome to the public had not failure to fulfil the terms of the grant in many cases worked a forfeiture of the privileges and had not bankruptcy resulted in numerous other instances in the extinction of corporations possessing unusual and socially dangerous powers. To make certain that unduly liberal terms would not be accorded in the future, state constitutions were so amended after the Dartmouth decision as to limit the power of the legislature to grant privileges or exemptions. Where too liberal charters had already been granted and powers inimical to public interest were actually being exercised under them, two avenues of escape were found. One was that of bargaining with the corporation for the surrender of objectionable provisions in return for certain added privileges later sought. The other lay in an application of the police power, such as was made by the courts in the Stanislaus case.[2] In this decision it was held that a certain burdensome provision, included in the charter granted a water company under an early general incorporation law passed by the California legislature, could no longer be enforced against the public, the court applying the principle stated by Bentham and quoted with approval in an earlier case: [3] "All laws may be said to be framed with a view to perpetuity; but perpetual is not synonymous with irrevocable and the principle on which all laws ought to be, and the greater part of them have been, established, is that of defeasible perpetuity—a perpetuity defeasible by an altera-

[1] 4 Wheaton 518.

[2] 192 U. S. 241.

[3] *Christ Church Hospital* v. *Philadelphia County*, 24 Howard 300, 16 Law Ed. 602.

tion of circumstances and reasons on which the law is founded."

UNIFORMITY OF CHARTER PROVISIONS

The typical charter of today under which railway operations are conducted has been granted by the state under the general laws providing for incorporation. It contains no unusual privileges and is similar in character to the charters granted corporate organizations in other fields. The only real charter problem which remains is that arising from the divergent provisions of various general incorporation laws. Railways operating through a number of states will, unless extraneous circumstances intervene, incorporate in the state which offers the most liberal charter. In many cases, indeed, railway corporations have received their charters from one state and operate wholly in others: the Southern Pacific, incorporated in Kentucky, operates no closer to that state than New Orleans. Essential uniformity in the future can be secured only in one of two ways, it seems, either through the adoption of uniform incorporation laws by the 48 states, or through the compulsory federal incorporation of all railways doing an interstate business. Because this latter plan permits the elimination of divergent provisions from charters long since granted by the various states, federal incorporation seems to offer the only ultimate solution of the problem.

MAGNITUDE OF THE RAILWAY CORPORATION

Beginning as small organizations in the early years, many modern railway corporations have become tremendously large and powerful entities. The financial magnitude of these properties can be best shown, perhaps, by presenting investment account and operating revenue totals. The Pennsylvania Railroad, including leased lines, with an investment account of about $1,800,000,000, has annual rev-

enues which exceed $700,000,000, while the New York Central and leased lines have an indicated investment of about $1,300,000,000 and annual revenues in excess of $400,000,000. In the South the Southern Railway has an investment of slightly over one-half billion dollars and revenues of about $150,000,000, while the Illinois Central, with an investment of a half-billion, enjoys annual revenues of about $180,000,000. In the Southwest, the Southern Pacific and Atchison, Topeka and Santa Fe represent an investment of almost a billion dollars each, and each has annual revenues of approximately $200,000,000; to the north lie the Union Pacific, the Northern Pacific, and the Great Northern, each with an investment approaching three-quarters of a billion and annual revenues of approximately $120,000,000.

This magnitude of modern railway enterprise is still further emphasized by figures showing the investment controlled and operating revenue received by certain large ownership groups. The so-called Vanderbilt lines have an investment account in excess of $2,500,000,000, while annual revenues approach $900,000,000 closely. The Pennsylvania system represents an investment of about $3,300,000,000 and enjoys annual revenues which approximate $1,125,000,000. In the West the Hill group has an investment figure near that of the Vanderbilt lines and revenues approximating $425,000,000, while the Union Pacific system, with an investment of about $2,750,000,000, receives annual revenues of almost $700,000,000. The railroads of the United States as a whole show an investment account approximating $22,000,000,000 and enjoyed, during the year 1923, operating revenues approaching $6,500,000,000.

FINANCIAL INTEREST OF PUBLIC IN RAILWAYS

The financial interest of the public in railways is clearly shown by the extent both of individual holdings and the holdings of investment institutions of a semi-public char-

acter. Large numbers of individuals have interested themselves in railway shares in the past, and that number, as Table 15 indicates, is increasing steadily and rapidly.

TABLE 15

GROWTH IN NUMBER OF STOCKHOLDERS IN 20 PRINCIPAL AMERICAN RAILWAYS, 1904 TO 1922 [1]

Name of Company	Shareholders 1904 June 30	1912 June 30	1922 Dec. 31
Pennsylvania Railroad	44,175	74,002	137,429
Atchison, Topeka and Santa Fe	17,823	31,738	64,643
New York Central and Hudson River.	11,781	22,247	34,319
New York, New Haven and Hartford.	10,842	21,948	25,804
Union Pacific	14,256	21,600	51,016
Great Northern	383	17,841	44,093
Southern Pacific	2,424	14,387	58,279
Northern Pacific	368	13,987	37,788
Chicago, Milwaukee and St. Paul	5,832	11,819	22,518
Baltimore and Ohio	7,132	11,414	35,720
Illinois Central	9,123	9,987	19,427
Erie	4,309	7,847	14,495
Chicago and North Western	4,109	8,564	19,451
Boston and Maine	7,402	8,105	19,222
Norfolk and Western	2,911	5,323	13,176
Delaware and Hudson	3,819	6,483	10,850
Denver and Rio Grande	2,910	4,928	5,972
Missouri Pacific	1,861	4,382	3,345
Chesapeake and Ohio	1,478	4,138	9,320
Louisville and Nashville	1,672	3,318	5,974
Total	154,610	304,058	626,969

Of course, a considerable number of duplications are represented among the stockholders of railways as shown above but, nevertheless, it is evident that an increasing number of the American people are investing their savings in the stocks of American railway corporations.

TENDENCY TOWARDS LARGE CORPORATE UNITS

Not only have great numbers of individuals placed their funds in railway securities directly, but heavy investments have also been made by banks and insurance companies in this field, particularly in bonds. James C. Young states

[1] Bureau of Railway News and Statistics.

that "About 20% of the combined funds of mutual life insurance companies and savings banks are invested in the roads. What becomes of these funds and their earning power is a matter which touches the daily life of more than 35,000,000 policyholders and more than 10,000,000 depositors." Figures which show accurately the number of the holders of bonds are not so readily ascertainable as in the case of stock, but it is evident that, upon the basis of insurance and bank holdings alone, there exists an even broader public interest in bonds than in shares.

Perhaps one of the outstanding tendencies evident throughout the course of railway development in America is that toward larger corporate units. In the early years of railway building, short lines connecting adjacent points and owned by unrelated corporations were typical; a southern railway, the Charleston and Hamburg, operating a total of but 137 miles of line, was at one time the longest railroad under a single management in the world! After a brief time, however, the movement toward unification began and, had it not been for the interference of public authority, the United States would undoubtedly have today a relatively small number of large railway systems. The following facts, in part a repetition from a preceding chapter, indicate the extent to which the larger carriers now predominate, despite the obstacles erected by the government. In 1921, Class I roads, those with gross operating revenues in 1919 of $1,000,000 or more, numbered but 185 of the 848 active carriers of all classes, yet they operated 233,504 of the total 260,606 [1] miles of railway in the United States, and during that year originated 940,182,560 tons of the total of 1,017,817,596 for all roads. In short, 21.8% of the operating railway corporations controlled 89.6% of the total mileage and originated 92.4% of the total tonnage. Table 16 further indicates the importance of the Class I carriers, almost 40% of which have incomes running above $10,000,000.

[1] Represents a duplication of mileage above 251,176 miles.

TABLE 16

CLASSIFICATION OF CLASS I RAILWAYS BY DISTRICTS, ACCORDING TO OPERATING REVENUES, FOR THE YEAR 1921

Operating Revenue	Total	Eastern District	Southern District	Western District
Below 10 Million	103	39	20	44
10– 25 Million	34	14	8	12
25– 50 Million	17	5	1	11
50–100 Million	14	9	3	2
100–200 Million	14	3	3	8
Over 200 Million	3	2	..	1
Total Number Roads	185	72	35	78

Evidence of concentration also appears in this: of the 185 Class I carriers tabulated above, the 28 highest "earners," constituting but 15% of the total number, received in 1921 more than $3,850,000,000, or almost 70% of the total operating revenues.

TENDENCY TOWARD CONCENTRATION OF CONTROL

Not only has the tendency toward larger individual properties been conspicuous, but the movement toward concentration of active control has also been marked, and this has been true even of the period during which the legal consolidation of competitive properties has been barred. This movement has been facilitated by several developments. First, a wider distribution of stock has made possible the control of a given property through the possession of a smaller proportion of the outstanding shares. The small holder rarely takes an active interest in corporate management, his participation usually being limited to the contribution of his proxy to those already "in the saddle" to aid in perpetuating the existing management—unless, perchance, that management has committed the *faux pas* of failing to pay dividends either because of mismanagement or because of conservative direction of the property. Second, the increasing bond ratio has facilitated concentration of control. The causes and dangers of this movement from a corporate

point of view will be discussed more fully later; here it is of concern merely because the larger the proportion of bonds to the total outstanding securities, the easier does it become to control large and important properties by a relatively small outlay. The development of the holding company has assisted in attaining this same end: the inverted pyramid has made possible the control of enormous interests with a very modest investment, as is well illustrated in the case of the old Rock Island Company and the present Atlantic Coast Line Company. Then, too, it may be added that, although legal restrictions have been successful in preventing the *physical identification* of properties, such legal restrictions have not been uniformly effective in preventing an *identity of interest.* Where the sale or lease of a property is forbidden, a common group of stockholders has frequently made essential unity of action possible. Stockholdings of one railway in another may effect the desired identity of interest also and, in cases where such holdings run counter to the law, the interlocking directorate has been widely employed as a means of harmonizing the interests of large competitive properties. Finally, the type of stockholder has so changed during the past 25 years as to promote this movement toward concentration of control. Railway shares have become less speculative in character and have therefore been acquired by individuals and groups with other financial interests.

CONCLUSION

In conclusion, it may be said, with respect to the railway corporation, that it has attained a tremendous significance in our present economic structure. Upon the financial soundness of these corporations depends not only the well-being of hundreds of thousands of security holders and employees with direct interests, but also the well-being and prosperity of many millions of others with an indirect interest—millions who are dependent upon these properties

for the rendition of an adequate transportation service upon such terms as will further economic and social development. Since this successful conduct of railway enterprise is dependent to an unusual degree upon efficiency of organization and administration, a brief presentation of that phase of the carrier business is well suited to serve as an introduction to the study of the major services rendered.

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——Dartmouth College Case, 4 Wheat. 518.

——*Munn* v. *Ill.,* 94 U. S. 113.

XII

THE ADMINISTRATIVE ORGANIZATION OF RAILWAYS

The function of the stockholder. The board of directors. Importance of the executive committee. The corporate officers. Evolution of the presidential function. Training and importance of the modern railway president. The secretary and the treasurer. The general counsel and his staff. The organization and work of the accounting department. The traffic department —organization and functions. The importance and functions of the operating department. Staff and line officers. Divisional versus departmental type of railway operating organization. Railway purchasing. The real estate agent. The efficiency of railway organization.

VIEWED as a whole, the railway business of the United States is a tremendous enterprise, tremendous in the amount of capital involved, in the number of people employed, and in the aggregate revenues enjoyed year by year. Indeed, the preceding chapter shows that many individual railway systems have attained a magnitude which is equaled by few of our greatest industrial units. Once an appreciation of this magnitude is gained, the difficulty of administration appears and the need of an efficient organization is patent if even a moderate degree of social efficiency and of financial success is to result. To render maximum service to the public at minimum cost to the railway, to insure the regular operation of an intricate machine in which the major factor is the human element, often variable and undependable, has been a problem which has taxed the ingenuity and capacity of masters of organization. In truth, this problem yet remains unsolved in part, although it must be granted that efficiency of organization has moved forward step by step with the necessities of larger and more complex plants and with the passage of years. That different types of organization should develop is only natural; to expect methods and

policies successful in one situation to be equally successful when confronted with others quite different is unreasonable. However, the general lines of development in railway administration have been sufficiently uniform to justify the presentation of what might be termed the typical organization for the conduct of the transportation business.

THE FUNCTION OF THE STOCKHOLDER

Just as in the case of any other corporation, primary control of the affairs of the railway resides in the stockholders. This control is normally exercised at the annual meeting of stockholders through the expression of opinion by individual stockholders, and through participation in the election of members of the board of directors of the corporation. Expression of opinion, however, carries little weight except as it comes from important stockholders and that importance is generally measured by the number of votes which the shareholder is able to cast. All too often the annual stockholders' meeting is only a formality, a gathering where protests and suggestions voiced by minority interests are heard patiently and smilingly, then buried most effectively by the controlling group with the avalanche of votes. A considerable proportion of these votes often represent the proxies of complacent stockholders whose sole interest in the property lies in the maintenance or increase of dividend rate. Such stockholders are willing to continue in power any group which succeeds in accomplishing this purpose, with little regard to the methods or principles employed in attaining that end. Minority representation upon the board of directors is often wholly lacking. Indeed, the absence of any system of voting devised to secure the representation of even strong minority interests upon boards of directors is the weakness and the danger of corporate procedure in the United States. Nevertheless, without regard to the weaknesses of the present plans, the fact remains that through his vote at the annual meeting the stockholder

must exercise such influence as he possesses upon the management and policies of the corporation. To this statement there is but one exception—the existence of a situation which justifies judicial interference with the policies of management. Yet, because such interference must rest upon clear proof of the betrayal of minority interests by the board of directors it is of negligible importance. No stockholder can safely rely upon protection from that source. His protection must lie, rather, in the honesty and integrity of controlling interests, or in the identity of his interests with those of the dominant group.

THE BOARD OF DIRECTORS

At this annual meeting certain ones from among the stockholders are chosen to serve upon the board of directors. These boards are composed of from nine to twenty-one men, who represent large stockholders, supporting banking institutions, interested railways, and occasionally important commercial enterprises. To effect greater continuity in policy, board members in the railway as in the industrial field are so selected as to make impossible a complete change in personnel, even though desired, in less than three to five years. The major functions of the board of directors, acting as a body, are three. Of these, the first concerns general policies. Before it are placed all proposals involving the adoption of new policies, and to it must also be referred all important modifications in old policies. The second function performed by this board, perhaps the most important, is the selection of the executive committee. To this subordinate organization extensive powers are delegated. Operation, finance, competition, and administration constantly give rise to an infinite variety of difficult problems which demand consideration at the hands of others than mere appointive officers. Yet, because of the very nature of the situation, the board of directors, with scattered residence and important individual business interests, cannot meet frequently

to consider vital matters. A "wheel within a wheel," so to speak, is therefore peculiarly essential to the successful administration of the larger railways, and is characteristic of practically all.

IMPORTANCE OF THE EXECUTIVE COMMITTEE

This executive committee is composed of from three to seven men, though the typical organization tends toward the smaller figure. As members of this committee, the board selects from its own number those most familiar with railway operations and best situated by location and business interests to deal with problems as they arise. The chairman of the board of directors normally serves, ex officio, as chairman of this active body and, if the president of the property is a member of the board of directors he, too, is usually designated as a member of the "inner circle." Since the primary responsibility and the greater burden of the work performed by the executive committee usually fall upon the shoulders of the chairman of the board and of the committee, this individual must be a man of broad training and experience in the railway field, possessed of exceptional judgment—a diplomat, statesman, financier, administrator, and railway expert all in one; otherwise both the immediate and long-time interests of the property will be prejudiced. The three outstanding matters with which the committee is concerned are the supervision of administrative policies, the planning and administration of financial matters, and the direction of the legal interests and policies of the corporation.

THE CORPORATE OFFICERS

A third function exercised by the board of directors acting as a unit, though action on their part may often be but little more than the approval of recommendations made by the executive committee or by the president of the railway, is the selection of those major officers of the corporation

who are immediately responsible for the management and direction of the property. Although there is a considerable variation among railways as to the number of men so chosen, the selection of the president, as well as of those immediately subordinate to him and directly responsible for operations, traffic, accounting, finance, and law requires the formal approval of the entire board of directors. The men thus chosen serve until they are superseded by definite action, or until resignation removes them from the service. The number of such officers subordinate to the president and reporting directly to him varies greatly among the different roads and is determined largely by the organization of the property for operation. Certain systems have two or more vice-presidents in charge of operations, with a given territory subject to the jurisdiction of each, and like divisions may exist in other fields, as traffic, though in such cases one man is generally made the responsible head.

In dealing with the railway, public interest centers neither upon the stockholder who theoretically directs the business, nor upon the board of directors which is chosen to serve him. Frequently the active group composing the executive committee is little known. Attention is fixed, rather, upon the administrative officers whose relationship to the property and to the public is much more obvious and direct. With these men the public treats in person; upon their ability to deal with that public fairly and intelligently depends in large measure the success which will attend the operation of the property. Yet the plebeian "local agent" and the passenger crews are often more responsible than high-ranking and highly paid officials for friendliness or hostility to the management, even to the railway industry as a whole. Upon the major officers chosen by the directors rests a dual burden, the responsibility of building up an effective organization, a task which involves the development of employee loyalty and of efficient management, and the obligation of so conducting the business in relation to the public and to the opportunities of the areas served

that the maximum long-time interest of the railway will be served.

THE PRESIDENT

Among the various railway officials the president is first in responsibility and outstanding in the public mind. He is chosen by the directors with the greatest care, for upon his capacity and efficiency depends very largely the success of the property. To him report both the staff officers, who act in an advisory capacity, and the line officers, who direct the various operations immediately incident to the rendition of service. Although invariably possessed of specialized training in some phase of railway work, it is impossible for the president to have a detailed knowledge of all matters subject to his control. His success, therefore, depends upon his soundness of judgment in the choice of lieutenants. The evolution of the presidential function in the railway field in America is interesting. Kirkman says: "In the early history of railroads the president of the company rarely participated in its physical management. Such matters were left to the superintendent. The president was usually a man of wealth, chosen with a view to the effect his name would have upon investors rather than his knowledge of railroad details. His responsibility, therefore, was merely nominal; the operating officer was expected to consult with him and listen to his views when he had any to express. He performed the dignified office of chairman of the board of directors and was also a member, ex-officio, of its various committees. He signed its bonds and in some cases certificates of stock. He was in many cases merely a figurehead." [1]

Gradually, however, there developed a tendency to relegate this imposing figure to the chairmanship of the board of directors and to select as active head of the organization a man trained in railway operations. Today the tradition

[1] Kirkman, M. M., *The Science of Railways*, vol. II.

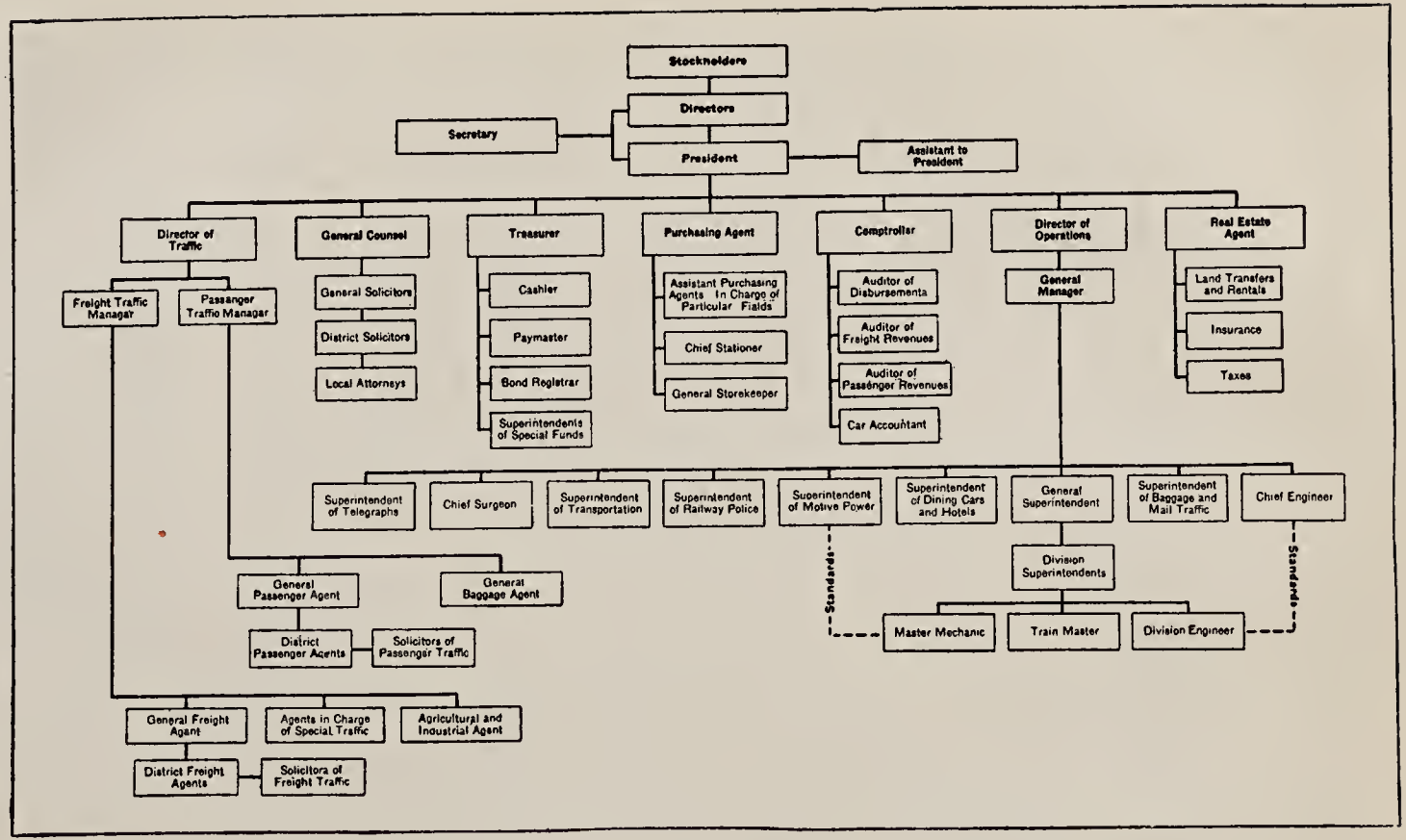

Figure 14: Outline plan of typical American railway organization

of movement "up from the ranks" has become so firmly fixed that it is difficult to conceive a large railway corporation headed by a man who has not spent long years of apprenticeship in "learning the railroad game" from one angle or another. An examination of the training received by the men heading fifteen of the more important railways in the United States in 1924 [1] shows that six of these executives received training as operating men, that two reached the position occupied by them through the traffic department, that another four are engineers by profession, and that the remaining three spent their period of apprenticeship in the legal department. In the past, operation and traffic, particularly the former, have offered the best avenues of approach to the presidential responsibility, but this is becoming less true as the problems facing the railway administrator become more complicated and more often present important financial and legal difficulties. Heavier burdens may be thrown upon the chairman of the board of directors and of the executive committee, however, leaving to the president only the duties of an administrative officer in charge of active operations. This policy, indeed, has been adopted by certain organizations, and is particularly characteristic of the so-called Harriman properties.

The responsibility and power of the active head of a great railway organization is perhaps best shown by the presentation of detailed facts. Many such executives exercise primary control over a property valued at approximately a billion dollars or more, and must direct the disposition of annual revenues varying from one hundred million dollars to as high as four times that figure. This official is also the supreme commander of an army of subordinate officials and workers which often numbers in excess of 50,000 and, in

[1] The New York Central, Pennsylvania, Baltimore and Ohio, the Erie, the Southern, the Illinois Central, the Southern Pacific, the Atchison, Topeka and Santa Fe, the Chicago, Rock Island and Pacific, the Union Pacific, the Chicago and North Western, the Chicago, Milwaukee and St. Paul, the Chicago, Burlington and Quincy, the Great Northern, and the Northern Pacific.

a few instances, of double that figure. Situated along the property which he heads are hundreds of thousands of people whose happiness and prosperity depend in great measure upon the character of the service rendered them. That men bearing such burdens and responsibilities, both for the corporation and the public, are entitled to a compensation which is commensurate with their load need not be emphasized; to refuse such reward will prejudice both public and private interests. Niggardliness in this particular will prove even more disastrous in the railway field than in competitive commercial and industrial enterprises: it is one in which efficiency is peculiarly difficult to secure and maintain. Able railway executives are underpaid, rather than overpaid.

THE SECRETARY AND THE TREASURER

The secretary is another officer of the corporation chosen by the directors, but one whose responsibilities and public significance are slight in comparison with those of the president. His principal functions are three—to keep the records of the corporation, to carry on correspondence affecting corporate matters, and to maintain a careful record of the ownership of all outstanding shares of the corporation. A second official whose work is also confined mainly to matters within the corporate organization is the treasurer. This official, like the secretary, is generally chosen by the board of directors, and sometimes bears the title of vice-president. In his department will be found a subordinate organization of some extent, headed by one or more assistant treasurers. Subordinate to an assistant treasurer will be a cashier in active charge of all moneys, a bond registrar upon whom rests the obligation of meeting payments of both interest and principal upon all bonded indebtedness, and a paymaster whose problem it is to care for the monthly or semimonthly pay-roll of the corporation. Among the subordinates of the treasurer may also be the superintendents of various special funds, such as pension and relief.

THE GENERAL COUNSEL AND HIS STAFF

The typical legal department of the railway is headed by a general counsel. This individual is usually a lawyer of high skill and long experience in the railway field, an important servant to the railway though but little known to the public. Upon him the president depends largely for advice with respect to important proposals. The relationship of this officer, who normally prefers the title of general counsel to that of vice-president, is therefore peculiarly close to the chief officer of the property and, in consequence, changes in the presidency are likely to result in a change in the office of general counsel, also. The major functions of the legal department are three: it renders legal advice to the various officials seeking counsel, directs all litigation to which the railway is a party, and makes and executes all contracts in which railway interests are involved. A fourth function often exercised of late years is that of directing rate cases before public bodies. To assist him in this work the general counsel often has several assistant general counsels, together with general solicitors in charge of large districts, perhaps entire states, and assistant general solicitors whose function it is to aid their principals. The organization is still further localized by the selection of district solicitors and by the appointment in practically every county seat of consequence "along the line" of a particularly able attorney whose aid might prove helpful either as a lawyer or as an influential citizen. It is interesting to note here that the recipient of this local appointment is often a man who has proved especially successful in combating the railway in the courts or before the public. Responsible also to the general counsel or to one of his subordinates is often the chief claim agent. Upon his legal knowledge and the shrewdness of his staff in detecting fraud the railway is dependent for protection against exorbitant and crooked claims for injuries and loss and damage. And these are more numerous and ingenious than often realized!

ORGANIZATION AND WORK OF THE ACCOUNTING DEPARTMENT

Yet another department within the railway organization which is concerned primarily with internal operations and has little contact with the public, is the accounting department. This department is headed by a man who usually bears the title of comptroller. He is selected by the board of directors and in some organizations bears the title of vice-president also. Upon this officer rests the obligation of maintaining an efficient and adequate staff to handle the tremendous mass of details which give an elaborate record of railway operations. This work must be done in the face of heavy financial demands emanating from the traffic and the operating departments, which often regard a staff of workers producing no revenues and concerned merely with the keeping of records as little more than a necessary evil. The duties of the accounting department vary widely, the extent of this variation depending upon the precise character of the work assigned to it. As a basis for the enumeration of duties, therefore, it may be well to give the organization of the typical department. Immediately subordinate to the comptroller is an assistant comptroller, or general auditor, who is generally in active charge of the administrative work of the department. Reporting to him are the auditor of expenditures or disbursements, the auditor of freight revenues, the auditor of passenger revenues, and, usually, the car accountant. Reporting to him also may be the auditor of freight claims, though this section, when once wrested from the traffic department by which it was often used as a covert means of favoring certain shippers, tends to rest finally under the jurisdiction of the legal department. The obligations of this typical accounting department—fully discussed in a later chapter—are fivefold. The first of these is to maintain a complete record of all transactions incident to the handling of traffic and to commercial activities. Another is to compare regularly the accounts of this department with those kept by the treasurer, and to inspect as fre-

quently as possible the books of all officers and agents handling corporate funds. In the accounting office, too, all vouchers calling for payments by the railways are verified and the approval of the proper officials secured. Here is kept, also, a record of all car movements upon the line for the use of various officials. The final obligation of this department is to compile statistical reports for the use of the railway as well as for various commissions and other public bodies requesting such information.

THE TRAFFIC DEPARTMENT—ORGANIZATION AND FUNCTIONS

A department of the railway which comes into closer contact with the public than any thus far mentioned is that concerned with traffic. The responsible officer, chosen by the board of directors, has the rank of vice-president and performs a distinctly helpful function not only from a railway standpoint but, oftentimes, from the standpoint of the public as well. Immediately subordinate to the vice-president in charge of traffic are two officials, one in active charge of freight traffic, the other of passenger traffic. Reporting to the freight traffic manager, who serves as chief adviser to the vice-president in all matters pertaining to freight movements, is the general freight agent, who in turn directs the work of certain assistant freight agents and division freight agents. To the division agents report the active solicitors of traffic. If there are general agents in charge of special traffic, such as coal, they, too, report to the freight traffic manager. The organization of the passenger department is similar to that of the freight department just described; a general passenger agent reports to the passenger traffic manager, and to him in turn report the assistant general passenger agents and the district passenger agents with their subordinates, the solicitors of passenger traffic. Reporting also to the passenger traffic manager is the general baggage agent, with exclusive charge of all matters pertaining to baggage and often to the railway mail and express service.

In this department the agricultural and industrial agents of the railway are found. The work of the other sections of the freight traffic organization is concerned wholly with solicitation of tonnage awaiting movement, but the agricultural and industrial agents have as their function the creation of new traffic in areas tributary to the particular carrier. Working in conjunction with state colonization bureaus, cooperating closely with agricultural colleges, associations of commerce, and farmer organizations, many railways serve a splendid public purpose, though concerned immediately with nothing more than the development of additional traffic.

The major functions of the traffic department are four. The most obvious function performed by it is the solicitation of traffic—that sharp struggle of one road with another for the privilege of handling the large quantities of competitive business. A second function is the fixing of rates, and over the signatures of the general freight and passenger agents are issued the various tariffs which govern the movement of goods and persons. In the construction of tariffs, particularly those which control freight movements, the local station agent, the solicitor, and the district freight agent all cooperate, gathering information and offering suggestions as to the actual rate which should be charged. A third function of this department is that of studying the service and of recommending to the operating department various improvements which promise to aid in increasing the freight or passenger business of the railway. The fourth function is to create, through study and leadership, new business for the company.

IMPORTANCE OF THE OPERATING DEPARTMENT

Second only to the president in importance among railway officials is usually the vice-president in charge of operation. This man, selected by the board of directors with great care and with special emphasis upon his capacity to accomplish results quickly and efficiently, is without exception a grad-

uate of the school of experience in the operating field where, perhaps, he may have spent the greater part of his life in progressing from track laborer, station agent, or other minor position, to this place of high authority. Upon his shoulders rests the obligation of operating the railway, and without successful direction here a railway must fail, however well administered otherwise. Reporting directly to the vice-president may be both line and staff officers, though the tendency is to have only the one or more general managers in charge of the property as a whole or various portions of it report directly to him. To the general manager, in such case, both staff and line officers are immediately responsible. Three functions which are vital to financial success and to adequate public service are discharged by the operating department. Upon it rests the responsibility of maintaining the property, roadway and structure as well as equipment, of supplying additional equipment, and of directing work incident to an increase of facilities. A second function is that of operating the trains, with all which that involves. The third, and one which brings the operating department into intimate touch with the patrons of the road, is that of furnishing service at stations and elsewhere in connection with freight and passenger business.

THE STAFF OFFICERS

In the typical organization there report to the general manager a number of officials in charge of sections whose work is relatively inconspicuous, though nevertheless indispensable to successful operation. Among the less conspicuous subordinate organizations are those headed by the chief surgeon, by the superintendents of railway police, of dining cars and hotels, of telegraphic service, and sometimes of relief and insurance. More important, comparatively, than these are the chief engineer and superintendent of motive power. These two officers may exercise direct supervision over line operations but are generally staff officers. The

former, in the typical American organization, fixes engineering standards for maintenance and minor construction work and rarely, except in the case of important construction, is on a parity with the general manager. Yet, occasionally, through a construction period, the chief engineer has been given a ranking even of vice-president. Immediately subordinate to the chief engineer are assistant engineers, a supervisor of tests, and the chief signal engineer. The superintendent of motive power, whose duty it is to fix standards for all equipment repair work and to advise concerning the standards to be required in the purchase of new equipment, has immediate supervision of certain mechanical engineers, an engineer in charge of tests, and the foremen of any general shops upon the system.

THE LINE OFFICERS

Responsible for the actual operation of the largest groupings of railway mileage are the general superintendents who report to the general manager. The mileage over which each of these officials has jurisdiction varies with traffic conditions and with the problems of operation, but a general superintendent may reasonably be expected to supervise the operation of from one thousand to fifteen hundred miles of line. He must be a master administrator, familiar with the problems of operation and intimately acquainted at all times with conditions over his division, and his work is the harder because it consists largely of solving the knottiest problems of his immediate subordinates. This official is held responsible by his superior for results, yet those results must be obtained by him through subordinates with whom he cannot maintain more than a semblance of personal contact. He is given, therefore, a relatively free hand in the selection of men for responsible positions under him, and upon his skill in selecting those subordinates largely depends his success.

Reporting to the general superintendent are several divi-

sion superintendents, the number varying in general from two to five. In speaking of the work of such officers, Morris declares, "Division superintendents are expected to know everything, and they are not supposed to need any sleep; they must be ready at any hour of day or night to go to any part of their district where there is trouble and to go there quickly, and they will almost invariably have to take the first executive action in the case of fire, or flood, or strike, or train wreck, although they will keep headquarters fully advised, by wire, of what they are doing." Not only is the proper selection of a division superintendent essential from the point of operating results, but, since he is the first official possessing authority with whom the public has contact, his success in dealing with that public is of greater importance than railway management has often realized. Upon the typical American railway, the division superintendent is, to an unusual degree, "monarch of all he surveys," and upon his ability to handle men, to deal with the public, and to cope successfully with technical problems, depends the success or failure of operations over his particular portion of the line.

Responsible to the division superintendent directly are three men, the division engineer, the master mechanic, and the trainmaster. To the first of these fall all matters relative to roadway and structures, the second is concerned with the maintenance and utilization of equipment, while the third is directly responsible for the movement of trains. Subordinate to the division engineer are the general foreman of the bridge and building "gang," the signal supervisor with his inspectors and operators, and the roadmaster to whom the section foremen report. The staff of the master mechanic is less extensive in title as well as in number. His immediate subordinates are the traveling engineers who are occupied with problems of motive power efficiency and the foremen of such shops as are maintained on the division. To the trainmaster report a variety of groups. Under his jurisdiction are the enginemen and trainmen, as well as those

in charge of various yards on the division. The station agents with their various subordinates and, oftentimes, the chief dispatcher are also responsible to him. To an even greater degree than the division engineer or the master mechanic, must the trainmaster be an "outside man"; the scope of his authority is so broad that only by constant movement over the line can he maintain adequate touch.

DIVISIONAL VERSUS DEPARTMENTAL ORGANIZATION

The type of organization just described, and which is typical of American operating conditions, is the so-called divisional. Here, as has been indicated, complete authority over all phases of work on the division is vested in the division superintendent; his power is limited only by those standards of performance which have been fixed for the divisional engineer and master mechanic by the chief engineer and superintendent of motive power, respectively. These experts, however, can in nowise control the actual time or methods of performance—*results only* are specified by them. This type of organization possesses certain distinct advantages: quicker action can be secured in emergencies because of the broad powers which the division superintendent exercises over all phases of work; centralization of authority promotes economy and increases efficiency; and, furthermore, with primary control resting in the hands of the division superintendent who has first-hand knowledge of local facts, better results are likely to follow. This type of organization is used almost exclusively in America for various reasons of which the most important are the great areas covered by individual lines, the peculiar degree to which the American stresses "getting the job done," and inertia. Nevertheless the purely divisional organization has been frequently modified upon the basis of experience by the appearance of a dual responsibility which, though complex and confusing in theory, has the justification of giving wholly satisfactory results.

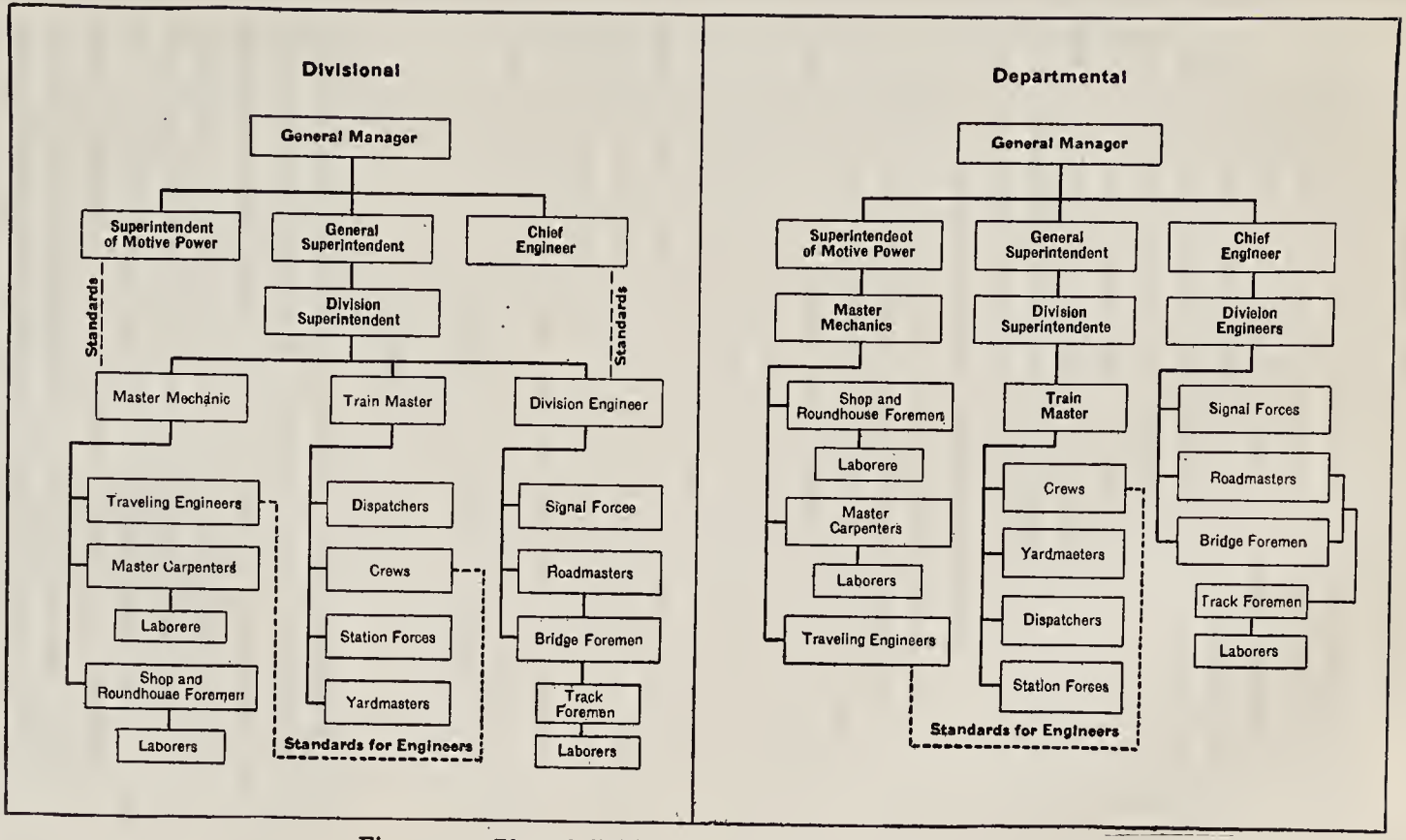

Figure 15: Plan of divisional and departmental organizations

The departmental type of organization differs from the divisional essentially in the scope of action permitted the division superintendent. Under this type, the division engineer and master mechanic no longer report to him but are wholly responsible to their technical superiors, the chief engineer and the superintendent of motive power, these chiefs not only fixing standards but also decreeing time and method of performance. The primary purpose of such an organization is to insure greater technical efficiency, but, incidentally, it relieves the division engineer and master mechanic of the difficulties which result from serving two masters. This plan is used almost exclusively in England where, because properties are more compact and accuracy receives greater emphasis, it has survived the test of time. But, despite its success there, it is unlikely that the departmental type of organization will be widely accepted by American roads in the face of the generally satisfactory results which have been obtained under the divisional type. The better adaptation of the latter to railways which traverse half a continent, the stress upon immediate results, and the existence of divisional rivalry which has been utilized so successfully by the railways in the accomplishment of maximum results, would seem to make it a permanent characteristic of American railway organization.

RAILWAY PURCHASING

The purchasing agent is another officer of the railway generally chosen by the directors. He usually serves with that title, though occasionally has the rank of vice-president. In earlier times, and under less highly developed organizations, railway purchasing was done by a number of individuals. This plan, however, proved unsatisfactory. It was inefficient, particularly because of consequent piecemeal buying and the absence of any standardization of materials; it was also objectionable because few such hydra-headed staffs were wholly free of dishonest dealing. To

overcome the weaknesses of decentralized buying, all purchasing activities are now centered in one office and the responsible director has, as an additional function, the storage of supplies and their distribution upon requisitions from the proper officers. The magnitude of the purchasing agent's task can only be appreciated by one who has been in a large railway "store"; here is to be found everything from pins and paper clips to great castings and tons upon tons of miscellaneous steel and rails, the variety of items included being almost comparable to the listings of a mail-order catalog. Immediately subordinate to the purchasing agent may be certain assistant purchasing agents, some of whom are often in charge of single important items such as coal, lumber, steel, and so forth, while others have more general scope. Reporting also to the purchasing agent is the chief stationer in charge of office supplies, and one or more general storekeepers. To them report in turn the storekeepers who act as custodians of local stores of material. Large railway systems maintain from one to three "general stores," with smaller stores at practically every division point.

THE REAL ESTATE AGENT

The final official whose work justifies consideration here is the real estate agent, who may be designated by that title alone or as vice-president in charge of real estate. This official, generally chosen by the board of directors, performs, with the assistance of any assistant real estate agents he may have and such local agents as may be needed, four functions. He directs the purchase and sale of all real estate by the corporation and executes all rental contracts between the railway and private individuals—contracts concerning the lease of ground for elevators, warehouses, coal sheds, or the rental of building space. A third function is to handle all tax matters; tax payments are made through the office of the real estate agent and here rests the responsibility of handling the problems and disputes which arise

regarding the taxation of railway properties. The final function discharged by this organization concerns insurance. Railway policy with respect to insurance varies rather widely: certain railways feel that it is to their advantage to insure wholly with outside corporations, while others have adopted the policy of meeting all losses from a special insurance fund set aside by them. Some roads carry their own risk except on large structures, while others follow yet different plans. Whatever the method of insurance may be, however, its execution rests in the hands of the real estate department.

THE EFFICIENCY OF RAILWAY ORGANIZATION

With the organization just outlined the American railway endeavors to accomplish its dual purpose, to serve the interests of its stockholders and to render effective transportation service to the public. On the whole, both groups have been served faithfully and well. That many carriers have failed in one or the other purpose, or in both, is to be regretted, of course, but such failure has rarely been chargeable to the plan of organization or to the conduct of the faithful thousands of major and minor employees who man the great railway net of America; rather, it lies at the door of "men higher up," or is attributable to circumstances over which man has little control. However, a marked improvement in the soundness of the railway financial structure, the greater efficiency of organization, and a higher sense of public obligation on the part of officers and employees alike, should make future failures even fewer and less serious than those of earlier years.

With this preliminary survey of the organization of the railway for service, an examination will be made in successive chapters of the services performed in the transportation of freight, passengers, mail, and express. Because of its fundamental importance to the carrier and the public, a study of the freight service will first be made.

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XIII

FREIGHT SERVICE

Freight papers: the bill of lading; straight and order bills of lading; the live stock contract. Limitation and nature of carrier liability. Title to goods en route, and reconsignment. The beginning and termination of carrier liability. Other legal problems. The way-bill. Forms used at destination. Unit billing. The handling of freight at terminals. The movement of traffic. Demurrage, reciprocal demurrage, and track storage. Evolution of railway interline practice. Compensation for use of "foreign" cars. Advantages and disadvantages of private cars in railway service. The future of private-car development.

It is no less true today than it was a half-century ago that judgment concerning the financial promise of any railway project hinges upon the production of affirmative evidence that an adequate freight traffic exists or is in reasonable prospect. Without such adequate tonnage the outcome could be nothing short of disastrous. It is not strange, therefore, that the mechanism of existing lines has been developed largely about the freight service, that even the route itself has often been determined more largely by tonnage considerations than by topography, by minimum distance and curvature, or by gradients. To the description of this mechanism, which makes possible the efficient handing of freight traffic, and to the discussion of those questions which are incidental thereto, this chapter is addressed.

FREIGHT PAPERS—THE BILL OF LADING

That public and railway requirements relative to the movement of freight may be most effectively met, the issuance of certain papers in connection with each shipment is requisite. These papers are available to shipping and receiving agents in standard form. The first document in

point of time which may be issued upon less-than-carload shipments is the so-called *receipt for freight*. This is given to the shipper by the local agent upon delivery of the consignment to the carrier and represents no more than a receipt for goods; in fact, it is seldom issued by smaller stations, but at larger ones some record is necessary if the consignor is to receive adequate protection. The second paper issued and the one which is of basic concern to the shipper is the *bill of lading*. This is issued to cover both carload and less-than-carload movements and contains numerous items of information. Among these items are the name of the shipper and the point of origin; the name of the consignee and the point of destination; such routing of the shipment as may be desired by consignor; the number of packages shipped, together with a description of the items, their weight, the rate per hundred pounds, and the total charges due. If it is a carload consignment, the number and initials of the car in which the goods have been loaded are also given. This document, signed by both the shipper and the local agent, represents a contract between the carrier and the consignor. There also appears among other matters upon the back of the bill of lading an enumeration of conditions under which the railway is relieved of that unusual liability which the law imposes upon common carriers. Among the bases for which exemption from such liability is recognized are an act of God, the act of a public enemy, the administration of quarantine regulations or other legal processes, natural shrinkage, strikes and riots, and an act or default on the part of the shipper or owner.

Of interest to the ordinary shipper are two kinds of bills of lading, the more common of these being the so-called "straight" bill. All copies of this type are made out on white paper, the original and triplicate going to the shipper, while the duplicate is filed by the shipping agent. This "straight" bill represents little more than a receipt for freight with certain added information, thereby differing markedly from the second type, the "order" bill. Shipments moving

Uniform Domestic Straight Bill of Lading Adopted by Carriers in Official, Southern and Western Classification Territories, March 16, 1922.

UNIFORM STRAIGHT BILL OF LADING

(PRESCRIBED BY THE INTERSTATE COMMERCE COMMISSION)

ORIGINAL—NOT NEGOTIABLE

Shipper's No.....

Agent's No.....

Company

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading,

at..... 192

from.....

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee—
For purposes of notification only.)

Consigned to.....

Destination..... State of..... County of.....

Route.....

(Delivering carrier.) Car Initial..... Car No.....

No. Packages	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (Subject to Correction)	CLASS OR RATE	CHECK COLUMN

If this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. (See section 7 of conditions.)

(Signature of consignor.)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $..... to apply in prepayment of the charges on the property described hereon.

Agent or cashier.

Per.....

(The signature here acknowledges only the amount prepaid.)

Charges advanced:

$.....

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE.—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding ..... per .....

Shipper. *Agent.*

Per..... Per.....

Permanent post-office address of shipper......

TO BE PRINTED ON "WHITE" PAPER

Figure 16: Specimen of Uniform Straight Bill of Lading

under the straight bill are in almost all instances consigned by the shipper, A, to the consignee, B; under an order bill they are usually consigned by the shipper, A, to himself or order with instructions to notify B, though A retains a

Uniform Domestic Order Bill of Lading Adopted by Carriers in Official, Southern and Western Classification Territories, March 16, 1922.

UNIFORM ORDER BILL OF LADING
(PRESCRIBED BY THE INTERSTATE COMMERCE COMMISSION)
ORIGINAL

Shipper's No.....
Agent's No.....

.....**Company**

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading,
at ....., 192
from
the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the wo d company being understood throughout this contract as meaning any person or corporation in possession of the property under the contra t) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said routs to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

The surrender of this Original ORDER Bill of Lading properly indorsed shall be required before the delivery of the property. Inspection of property covered by this bill of lading will not be permitted unless provided by law or unless permission is indorsed on this original bill of lading or given in writing by the shipper.

(Mail or street address of consignee. For purposes of notification only.)

Consigned to ORDER OF.....
Destination.....State of.....County of.....
Notify.....
At.....State of.....County of.....
Route.....
.....Car Initial.....Car No.....
(Delivering carrier.)

No. Packages	Description of Articles, Special Marks and Exceptions	*Weight (Subject to Correction)	Class or Rate	Check Column

If this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. (See Section 7 of Conditions.)

(Signature of consignor.)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $.....
to apply in prepayment of the charges on the property described hereon.

Agent or Cashier.

Per.....
(The signature here acknowledges only the amount prepaid.)

Charges Advanced:
$.....

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE.—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding.....per.....

.....Shipper. .....Agent.
Per..... Per.....
Permanent post-office address of shipper.....
(To be Printed on Yellow Paper.)

Figure 17: Specimen of Uniform Order Bill of Lading

partial control if the shipment is consigned to B or order: in either case the carrier surrenders it only upon presentation of the bill of lading, properly indorsed. The original of the order bill is made out on yellow paper with

Endorsements

CONTRACT TERMS AND CONDITIONS

Sec. 1. (a) The carrier or party in possession of any of the property herein described shall be liable as at common law for any loss thereof or damage thereto, except as hereinafter provided.

(b) No carrier or party in possession of all or any of the property herein described shall be liable for any loss thereof or damage thereto or delay caused by the act of God, the public enemy, the authority of law, or the act or default of the shipper or owner, or for natural shrinkage. The carrier's liability shall be that of warehouseman only, for loss, damage, or delay caused by fire occurring after the expiration of the free time allowed by tariffs lawfully on file (such free time to be computed as therein provided) after notice of the arrival of the property at destination or at the port of export (if intended for export) has been duly sent or given, and after placement of the property for delivery at destination, or tender of delivery of the property to the party entitled to receive it, has been made. Except in case of negligence of the carrier or party in possession (and the burden to prove freedom from such negligence shall be on the carrier or party in possession), the carrier or party in possession shall not be liable for loss, damage, or delay occurring while the property is stopped and held in transit upon the request of the shipper, owner, or party entitled to make such request, or resulting from a defect or vice in the property, or for country damage to cotton, or from rots or of strikes.

(c) In case of quarantine the property may be discharged at risk and expense of owners into quarantine depot or elsewhere, as required by quarantine regulations or authorities, or for the carrier's dispatch at nearest available point in carrier's judgment, and in any such case carrier's responsibility shall cease when property is so discharged, or property may be returned by carrier at owner's expense to shipping point, carning freight both ways. Quarantine expenses of whatever nature or kind upon or in respect to property shall be borne by the owners of the property or be a lien thereon. The carrier shall not be liable for loss or damage occasioned by fumigation or disinfection or other acts required or done by quarantine regulations or authorities even though the same may have been done by carrier's officers, agents, or employees nor for detention, loss, or damage of any kind occasioned by quarantine or the enforcement thereof. No carrier shall be liable, except in case of negligence, for any mistake or inaccuracy in any information furnished by the carrier, its agents, or officers, as to quarantine laws or regulations. The shipper shall hold the carriers harmless from any expense they may incur, or damages they may be required to pay, by reason of the introduction of the property covered by this contract into any place against the quarantine laws or regulations in effect at such place.

Sec. 2. (a) No carrier is bound to transport said property by any particular train or vessel, or in time for any particular market or otherwise than with reasonable dispatch. Every carrier shall have the right in case of physical necessity to forward said property by any carrier or route between the point of shipment and the point of destination. In all cases not prohibited by law, where a lower value than actual value has been represented in writing by the shipper or has been agreed upon in writing as the released value of the property as determined by the classification or tariffs upon which the rate is based, such lower value plus freight charges if paid shall be the maximum amount to be recovered, whether or not such loss or damage occurs from negligence.

(b) Claims for loss, damage, or injury to property must be made in writing to the originating or delivering carrier or carriers leaving this bill of lading within six months after delivery of the property (or, in case of export traffic, within nine months after delivery at port of export), or, in case of failure to make delivery, then within six months (or nine months in case of export traffic) after a reasonable time for delivery has elapsed; provided that if such loss, damage, or injury was due to delay or damage while being loaded or unloaded, or damaged in transit by carelessness or negligence, then no notice of claim nor filing of claim shall be required as a condition precedent to recovery. Suits for loss, damage, injury, or delay shall be instituted only within two years and one day after delivery of the property, or in case of failure to make delivery, then within two years and one day after a reasonable time for delivery has elapsed. Provided, That in case the claim on which suit is based was made in writing within six months, or nine months in case of export traffic (whether or not filing of such claim is required as a condition precedent to recovery), suit shall be instituted not later than two years and one day after notice in writing is given by the carrier to the claimant that the carrier has disallowed the claim or any part or parts thereof specified in the notice.

(c) Any carrier or party liable on account of loss of or damage to any of said property shall have the full benefit of any insurance that may have been effected upon or on account of said property, so far as this shall not avoid the policies or contracts of insurance. Provided, That the carrier reimburse the claimant for the premium paid thereon.

Sec. 3. Except where such service is required as the result of carrier's negligence, all property shall be subject to necessary cooperage and baling at owner's cost. Each carrier over whose route cotton is to be transported hereunder shall have the privilege, at its own cost and risk, of compressing the same for greater convenience in handling or forwarding, and shall not be held responsible for deviation or unavoidable delays in procuring such compression. Grain in bulk consigned to a point where there is a railroad, public or licensed elevator, may (unless otherwise expressly noted herein, and then if it is not promptly unloaded) be there delivered and placed with other grain of the same kind and grade without respect to ownership; and if so delivered shall be subject to a lien for elevator charges in addition to all other charges hereunder.

Sec. 4. (a) Property not removed by the party entitled to receive it within the free time allowed by tariffs, lawfully on file (such free time to be computed as therein provided), after notice of the arrival of the property at destination or at the port of export (if intended for export) has been duly sent or given, and after placement of the property for delivery at destination has been made, may be kept in vessel, car, depot, warehouse or place of delivery of the carrier, subject to the tariff charge for storage and to carrier's responsibility as warehouseman only, or at the option of the carrier, may be removed to and stored in a public or licensed warehouse at the place of delivery or other available place, at the cost of the owner, and there held without liability on the part of the carrier, and subject to a lien for all freight and other lawful charges, including a reasonable charge for storage.

(b) Where nonperishable property which has been transported hereunder to destination is refused by consignee or party entitled to receive it, or said consignee or party entitled to receive it fails to receive it within 15 days after notice of arrival shall have been duly sent or given, the carrier may sell the same at public auction to the highest bidder, at such place as may be designated by the carrier: Provided, That the carrier shall have first mailed, sent, or given to the consignor notice that the property has been refused or remains unclaimed, as the case may be, and that it will be subject to sale under the terms of the bill of lading if disposition be not arranged for, and shall have published notice containing a description of the property, the name of the party to whom consigned, or, if shipped order notify, the name of the party to be notified, and the time and place of sale, once a week for two successive weeks, in a newspaper of general circulation at the place of sale or nearest place where such newspaper is published: Provided, That 30 days shall have elapsed before publication of notice of sale after said notice that the property was refused or remains unclaimed was mailed, sent, or given.

(c) Where perishable property which has been transported hereunder to destination is refused by consignee or party entitled to receive it, or said consignee or party entitled to receive it shall fail to receive it promptly, the carrier may, in its discretion, to prevent further deterioration, sell the same to the best advantage at private or public sale: Provided, That if time serves for notification to the consignor or owner of the refusal of the property or the failure to receive it and request for disposition of the property, such notification shall be given, in such manner as the exercise of due diligence requires, before the property is sold.

(d) Where the procedure provided for in the two paragraphs last preceding is not possible, it is agreed that nothing contained in said paragraphs shall be construed to abridge the right of the carrier, at its option, to sell the property under such circumstances and in such manner as may be authorized by law.

(e) The proceeds of any sale made under this section shall be applied by the carrier to the payment of freight, demurrage, storage, and any other lawful charges and the expense of notice, advertisement, sale, and other necessary expense and of caring for and maintaining the property, if proper care of the same requires special expense, and should there be a balance it shall be paid to the owner of the property sold hereunder.

(f) Property refused to or taken from a station, wharf, or landing where there is no regularly appointed freight agent shall be entirely at risk of owner after unloaded from cars or vessels or until loaded into cars or vessels, and except in case of carrier's negligence, when received from or delivered to such stations, wharves, or landings shall be at owner's risk until the cars are attached to and after they are detached from locomotive or train or until loaded into and after unloaded from vessels.

Sec. 5. No carrier hereunder will carry or be liable in any way for any documents, specie, or for any articles of extraordinary value not specifically rated in the published classifications or tariffs unless a special agreement to do so and a stipulated value of the articles are indorsed hereon.

Sec. 6. Every party, whether principal or agent, shipping explosives or dangerous goods, without previous full written disclosure to the carrier of their nature, shall be liable for and indemnify the carrier against all loss or damage caused by such goods, and such goods may be warehoused at owner's risk and expense or destroyed without compensation.

Sec. 7. The owner or consignee shall pay the freight and average, if any, and all other lawful charges accruing on said property; but, except in those instances where it may lawfully be authorized to do so, no carrier by railroad shall deliver or relinquish possession at destination of the property covered by this bill of lading until all tariff rates and charges thereon have been paid. Except as otherwise provided by tariffs lawfully on file, any other lawful charges, except that if collect charges be noted by signature, in the space provided for that purpose on the face of this bill of lading that the carrier shall not make delivery without requiring payment of such charges and the carrier, contrary to such stipulation, shall make delivery without requiring such payment, the consignor shall not be liable for such charges. Nothing herein shall limit the right of the carrier to require at time of shipment the prepayment or guarantee of the charges. If upon inspection it is ascertained that the articles delivered are not those described in this bill of lading, the freight charges must be paid upon the articles actually shipped.

Sec. 8. If this bill of lading is issued on the basis of a lower declared or released valuation for another bill of lading, the shipper's signature to the prior bill of lading as to the statement of value or otherwise, or election of common law or bill of lading liability, in or in connection with such prior bill of lading, shall be considered a part of this bill of lading as fully as if the same were written or made in or in connection with this bill of lading.

Sec. 9. (a) If all or any part of said property is carried by water over any port of said route, such water carriage shall be performed subject to all the terms and provisions of, and all the exemptions from liability contained in, the Act of the Congress of the United States, approved on February 13, 1893, and entitled "An act relating to the navigation of vessels," and of other laws of the United States according carriers by water the protection of limited liability, and to the conditions contained in this bill of lading not inconsistent therewith or with this section.

(b) No such carrier by water shall be liable for any loss or damage resulting from any fire happening to or on board the vessel, or from explosion, bursting of boilers or breakage of shafts, unless caused by the design or neglect of the carrier.

(c) If the owner shall have exercised due diligence in making the vessel in all respects seaworthy and properly manned, equipped, and supplied, no such carrier shall be liable for any loss or damage resulting from the perils of the lakes, seas, or other waters, or from latent defects in hull, machinery, or appurtenances whether existing prior to, at the time of, or after sailing, or from collision, stranding, or other accident of navigation, or from prolongation of the voyage. And, when for an reason it is necessary, any vessel carrying any or all of the property herein described shall be at liberty to call at any port or ports, in or out of the customary route to tow and be towed, to transfer, transship, or lighter, to load or discharge cargo at any place, to put into dock, to deviate for the purpose of saving life or property, and for docking and repairs. Except in case of negligence such carrier shall not be responsible for any loss or damage to property if it be necessary or is usual to carry the same upon deck.

(d) General average shall be payable according to York-Antwerp Rules, 1890, and, as to any matter not therein provided for, according to the law and usage of the port of New York. If the owners shall have exercised due diligence to make the vessel in all respects seaworthy and properly manned, equipped and supplied, it is hereby agreed that in case of accident, danger, damage or disaster resulting from or happening before or during the prosecution of the voyage, or from any latent or other defects in the vessel, her machinery or appurtenances, or from unseaworthiness, whether existing at the time of shipment or at the beginning of the voyage (provided the latent or other defects or the unseaworthiness was not discoverable by the exercise of due diligence), the shippers, consignees and/or owners of the cargo shall nevertheless pay salvage and any special charges incurred in respect of the cargo, and shall contribute with the shipowner in general average to the payment of any sacrifices, losses or expenses of a general average nature that may be made or incurred for the common benefit or to relieve the adventure from any common peril.

(e) If the property is being carried under a tariff which provides that any carrier or carriers party thereto shall be liable for loss from perils of the sea, then as to such carrier or carriers the provisions of this section shall be modified in accordance with the tariff provisions, which shall be regarded as incorporated into the conditions of this bill of lading.

(f) The term "water carriage" in this section shall not be construed as including lighterage in or across rivers, harbors, or lakes, when performed by or on behalf of rail carriers.

Sec. 10. Any alteration, addition, or erasure in this bill of lading which shall be made without the special notation hereon of the agent of the carrier issuing this bill of lading shall be without effect, and this bill of lading shall be enforceable according to its original tenor.

Figure 18: Reverse side of Order Bill of Lading showing contract terms and conditions.

duplicate and triplicate on blue and this original serves generally as a negotiable instrument. The prime purpose of this type of bill of lading is to eliminate the transaction of business upon a credit basis; it enables the shipper to secure payment before the goods pass from his control. Its

use, however, erects an extra barrier between carrier and consignee: oftentimes, because of chance slips in business arrangements, the railroad finds itself obliged to deny delivery to a consignee who is anxious to meet the obligation imposed by the order bill and who is seriously inconvenienced because of a temporary inability to complete the transaction and thereby obtain possession of the goods. And invariably the carrier is condemned for refusing delivery! Yet so serviceable has the order bill proved to business concerns that, despite the additional burden placed upon the carrier and the recipient, its use seems likely to increase rather than diminish.

THE LIVE STOCK CONTRACT

Because of the wide divergence between problems arising out of the shipment of ordinary freight and those encountered in the handling of live animals, a specialized type of bill of lading has been developed to cover that portion of railway traffic. This "Live Stock Contract," so-called, is issued to cover the movement of all live stock and wild animals and is a straight bill, non-negotiable in character. Several important differences appear in a comparison of this document with the ordinary bill of lading. The shipper is required to state clearly whether the live stock offered for movement is ordinary or other than ordinary. If the latter, the value must be declared and a rate is made which varies with the value set forth. Upon the back of the contract are definite stipulations concerning the liability of the carrier for loss or damage suffered, also provisions relative to the care of stock while en route and their handling under quarantine. Here, too, is a separate agreement which must be executed by the caretaker accompanying the shipment. This agreement contains a statement of the carrier's obligations to such caretaker and of its liability for any injuries which may be suffered by him at the hands of the carrier, while the shipment is en route.

IMPORTANT LEGAL PROBLEMS

Until recent years it was a common practice among railways to attempt, through a provision in the bill of lading, to limit their liability for loss or damage by compelling the shipper to agree to a fixed value upon the consignment. To meet this practice Congress passed the so-called Cummins Amendment in 1915 which denied the carrier the right thus to limit its liability by contract. Certain carriers have countered this legislation by the issuance of tariffs under which rates are fixed upon the basis of a definite valuation, with a sliding scale of rates governing the movement of articles upon which a greater than the standard valuation is placed. In event of the failure of the railway to so adjust its tariffs, however, the carrier is liable for the full value of the shipment except as the value given constitutes a misrepresentation of the worth of the consignment so gross as to result in the bestowal by the carrier of lesser care upon shipment than that to which its true nature entitles it. The shipper's valuation is, therefore, just as other statements in the bill of lading, mere evidence rather than proof.

A number of complicated and difficult legal problems arise incident to the shipment of goods. Among these, one of the most important concerns the character of the liability of a carrier. The law has long held the carrier liable, not merely for "reasonable care" or "due diligence" with respect to goods entrusted to its care for transportation but, rather, as an *insurer*. The explanation of this unusual liability lies in the fact that, during the period of transportation, the goods are wholly beyond the control of both the consignor and the consignee, a situation which makes fraud upon the part of the carrier peculiarly possible. However, the carrier is not liable as an insurer under *all* circumstances when in possession of a shipment—that liability terminates and liability only as a *warehouseman* governs if goods are placed in the hands of the carrier an unduly long time before possible shipment or are permitted to remain in its posses-

sion beyond a reasonable period after arrival at destination. As warehouseman, the carrier is liable merely for ordinary care. Furthermore, as noted on a preceding page, liability as an insurer does not extend to losses which result from contingencies wholly beyond the carrier's control.

Another important legal question which arises is that of title to the shipment. With respect to this the courts have held that, under usual conditions, title lies in the consignee and, in consequence, that the carrier functions as his agent. Immediately upon the delivery of a consignment to the carrier, legal title passes to the party to whom the shipment is consigned, a second party under the usual straight bill. In view of this fact the commercial practice of reconsigning goods moving under a straight bill gives rise to an interesting problem. Although such orders from shippers for reconsignment are very frequent and are usually executed by the railways, carriers generally recognize their liability to the consignee for any loss suffered through such conversion, by compelling the consignor to furnish an indemnity bond to protect them against legal action on the part of an injured consignee. In the case of goods shipped subject to an order bill of lading, diversion raises little question since consignor and consignee are generally the same.

BEGINNING AND TERMINATION OF CARRIER LIABILITY

Many disputes between carrier and patron have arisen out of yet another problem, the point at which carrier liability begins in the handling of a shipment and the point at which it ceases. Although the holdings of the courts in various jurisdictions are not the same, the meeting of any one of three conditions seems to have been accepted generally as constituting delivery to the carrier. Delivery is held to have been made if an item for shipment has been deposited in the customary place, even though no notification has been given to the carrier's representative. If deposit has been made in other than a customary place, however,

delivery has not been completed until the agent of the carrier has been duly notified. Again, delivery is completed when the carrier's agent has assumed control over the shipment. If, for example, that agent should direct the loading of goods from truck to car and damage should be suffered while making that transfer, the carrier would be held liable upon the basis of completed delivery even though the goods were never placed in the car. This liability as an insurer terminates, unless modified by statutory enactment, within 48 hours after the arrival of the shipment at the destination. If notice is customarily given, then the meeting of this requirement, or reasonable effort to meet it, must be shown to

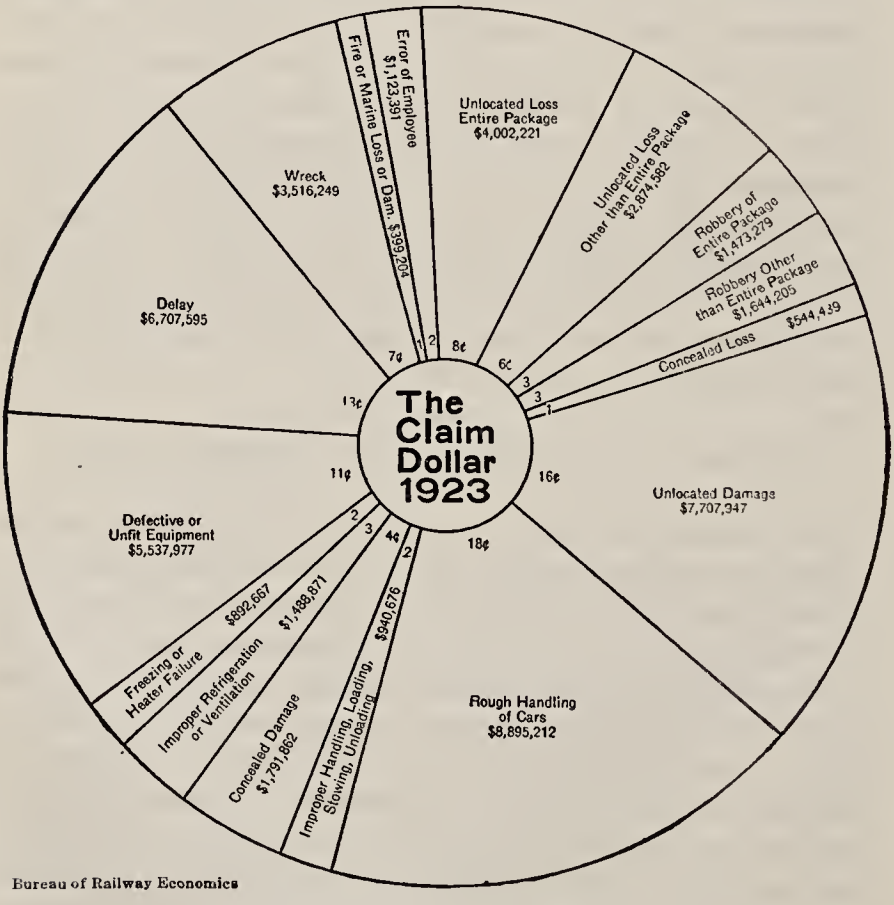

Figure 19: Loss and damage costs

modify liability to that of warehouseman. If, however, it is not customary to give notice, the mere holding of the goods for a reasonable period terminates liability as an insurer.

OTHER LEGAL PROBLEMS

Additional important and intricate legal problems arise from the movement of goods, but of even the major ones only passing mention can here be made. If delivery of a shipment cannot be effected, the consignor may be held liable not only for the freight charges due, but also for any storage costs which have accrued. If, in the handling of traffic, it has been necessary to render any extraordinary service, such as the unloading and drying of a shipment which has been wet through no fault of the carrier, consignee or consignor is liable for that added expense. Should damage, which is traceable to improper crating or to the improper loading of carload shipments, be suffered, the loss rests upon the patron rather than upon the carrier. With respect to claims for so-called "hidden losses," the policy of the railway in the past has been to allow such claims upon the establishment of loss. However, because of the heavy financial burden placed upon the carriers by that practice the tendency has been increasingly in the direction of demanding full proof of the occurrence of such loss while the goods were *actually in possession of the carrier*. This movement was furthered by the policy of the government during the period of federal control; no "hidden loss" claims were then allowed except as the carrier's liability was clearly established.

THE WAY-BILL

A second important paper which is issued in connection with the movement of each freight shipment, whether large or small, is the *way-bill*. This document is not issued for the shipper but, rather, for the convenience of the carrier itself and contains, in addition to the items of informa-

Freight Way-Bill

Co.

(Name of Railroad or Steamship Co.)

FREIGHT WAY-BILL

Stop This Car For

At

Gross Weight of Car and Contents for Engine Rating

Tons

Car Movement Record

CAR INITIALS | CAR NUMBER

Route (Show Each Junction and Carrier in Route Order)

TO (STATION) (STATE)

CONSIGNEE AND ADDRESS

INSTRUCTIONS REGARDING ICING, VENTILATION, MILLING, WEIGHING, ETC. IF ICED, SPECIFY TO WHOM ICING SHOULD BE CHARGED

YARD STAMPS MUST NOT BE SHOWN ON FACE OF THIS WAY-BILL

TRANSFERRED

To..... CAR No.....

AT.....

Waybill

Date..... No.....

FROM (STATION) STATE)

SHIPPER

Length of Car: Ft. In. | Marked Capacity of Car | Stencilled Weight of Car

*Reference Numbers

Indicate by SYMBOL in column provided how weights were obtained.
R—Railroad Scale
A—Weighing Bureau or Agreement
T—Tariff, Classification or Minimum
S—Shipper's Agreement or Tested Weight
E—Estimated (Weigh and Correct)

WEIGHED

At.....

Gross.....

Tare.....

Allowance.....

Net.....

LADING	WEIGHT	How Obtained	RATE AND TARIFF No.	FREIGHT	ADVANCES	PREPAID	

*Insert here license numbers, bill of lading numbers, or such other reference numbers as are essential.

JUNCTION FORWARDING AGENTS WILL SHOW JUNCTION STAMPS IN THE SPACE AND IN THE ORDER PROVIDED BELOW.

1st Jct.	2d Jct.	3d Jct.	4th Jct.	5th Jct.

Figure 20: Specimen of Freight Way-Bill

tion appearing in the bill of lading, other facts essential to the expeditious and certain handling of the shipment, such as car initials and number, junction points, and so forth. Beside the original, two copies of the way-bill are usually

made. The original is forwarded to the point of destination, either by the conductor in charge of the train upon which the shipment moves, or by mail. In the latter case the conductor is furnished a card giving the information necessary to the proper handling of the shipment. One copy of the way-bill is filed by the forwarding agent and the other is sent to the auditor of freight receipts. From this last, most carriers compile their statistics of freight movements and revenues. Sometimes, however, instead of supplying this information to the office of the auditor of freight receipts upon a copy of the way-bill, it is furnished upon a so-called "forwarded abstract." In any case, it is the general practice to make this abstract and to transmit it to the auditor's office as an aid in maintaining accurate check upon the delivery of shipments.

Two types of way-bill are issued by each carrier, the local for movements wholly upon its own lines, and the interline when the delivery requires that the shipment move over the lines of two or more carriers. In the case of the interline shipment an additional copy is issued for each of the carriers participating in the movement; this furnishes them not only a basis for freight accounting, but also a record which will assist them in tracing the shipment. In the past each railway had its own "form" for both interline and local movements, but this situation gave rise to such confusion and inconvenience that all railways now issue bills of lading upon standard forms by order of the Interstate Commerce Commission, one form for local and the other for interline business.

FORMS USED AT DESTINATION

Upon the arrival of a shipment at destination two papers, together with a notification of arrival to the consignee, are made up. The first of these is the so-called *freight bill* upon which such data are given as will indicate to the consignee the nature of the shipment and the charges there-

upon. In addition to the freight bill there is also made up a *delivery receipt* which, when it has been signed by the consignee at the time the shipment is placed in his possession, constitutes a record of completion of the contract undertaken in the bill of lading. Should any shortage be discovered or any evidence of "hidden loss" or damage be indicated by the condition of the shipment at the time of delivery, such facts are properly noted upon the delivery receipt as evidence that the shipment has been transferred to the consignee incomplete or in bad order. Such a notation forms a definite basis for a later claim.

A considerable amount of time and effort is required to make out the various papers which cover the receipt, movement, and delivery of freight shipments. In addition to the expense involved, the carrier faces a problem: errors are occasionally made in copying data from one paper to another which cause inconvenience to the shipper and loss to the carrier. To lessen both time and error cost, the idea of unit billing has been conceived and developed to a certain degree. This plan involves the construction of the various forms in such manner as to permit, by means of carbons, a number of the necessary papers to be made out at a single writing or typing. Yet, despite its apparent advantages, this plan has gained little favor and, in consequence, practically all railways still make up various papers separately.

HANDLING OF FREIGHT AT TERMINALS

At each point touched by the railway it is necessary, of course, both to deliver shipments and to receive them. Of those offered, some involve line movements, others interline. That maximum efficiency may be attained in the handling of these shipments, it has been necessary, particularly in cities of any size, to devise a plan for the conduct of the freight service which reduces confusion and increases the speed of handling. The first step in the accomplishment of

this end has been the separation of incoming and outgoing less-than-carload business, the latter being handled at the so-called "outbound" freight house, the former at the "inbound." After the delivery of small-quantity shipments to the carrier has been made by the shipper at the outbound house, the first essential to the efficient handling of these consignments is to group them by divisions and then to separate division groupings by destination. These two steps taken, the less-than-carload shipments are ready to be stowed into waiting cars. A further problem remains, however: the goods must be so loaded as to minimize or eliminate loss and damage. This involves a careful grouping of shipments according to character and method of packing, and compact stowing. Should precautions not be taken in these particulars, injury and consequent damage claims are certain to result.

When a car loaded with less-than-carload shipments reaches its destination, it is "spotted" at the inbound freight house and, as unloaded, a "blind check" is made of the contents of the car. This blind check, which indicates accurately the type of all goods unloaded from a particular car, as well as the number of units of each type, is then compared with the way-bill or way-bills accompanying that particular carload shipment. Experience has proved that such a record, made without knowledge of the nature or number of items supposed to be in the car, will show more accurately the actual contents than would a checking of the contents of the car against the way-bill itself. With the car unloaded, consignments are then grouped to expedite their delivery. Such grouping may be made according to the nature of the commodity, alphabetically according to consignees, or by an arbitrary grouping of consignees. However, in large stations all three methods are often used; such items as petroleum and petroleum products are grouped by commodity, shipments for the general public are classified alphabetically, and consignments to individuals or concerns receiving considerable quantities of goods are placed accord-

ing to arbitrary groupings. In any case, the system employed will be essentially that which, with a minimum expenditure of effort upon the part of truckers, will give maximum efficiency in the delivery of the goods.

A third instrumentality employed in the handling of less-than-carload shipments is the transfer house which, because of its character, should be located between the inbound and the outbound houses except, perhaps, at terminals. The first function of the transfer house is to break up miscellaneous less-than-carload shipments received from smaller stations and re-group such shipments by destination. This facilitates the proper placement of interline shipments and often permits the consolidation of less-than-carload shipments into carload groupings. A second function of the transfer house is to break up carload groupings of less-than-carload freight, distributing those shipments according to station for delivery upon the next division.

A final instrumentality which is utilized by the carrier for the receipt and delivery of carload shipments is the industry track or the public teaming track. Upon request from a shipper for equipment which will enable him to move his goods in carload lots, an empty car is delivered by the railway upon the spur or industrial track serving that particular shipper or, if he is not so served, upon the public teaming tracks. This car, after being loaded by the shipper, is moved by the railway to destination where it is spotted for unloading according to the consignee's instructions.

THE MOVEMENT OF TRAFFIC

The work of the carrier, however, is in no sense ended once the car is loaded at the freight house or by the shipper; indeed, its work has just begun. The whole question of the efficient movement of that car to destination remains. In accordance with the usual method, loaded cars are switched to the so-called "loaded" tracks and the yard service then groups them by type of freight. Fast freight shipments of

perishables or rush orders are grouped together and regular freight likewise. Commodity freight, such as coal, ore, lumber, and so forth, forms a third group. Once separated according to type, the cars are further grouped by divisions. The final step in the direction of efficient handling remains, that of so grouping the cars in the train that a minimum of switching is required to accomplish their delivery. To this end cars are grouped, if possible, by stations and ordered from engine to caboose as the stations lie upon the division.

To facilitate this grouping of cars, two methods of switching are employed, the one the so-called flying switch, the other the gravity or "hump." Where comparatively little switching is necessary, the former method is the less expensive, but at points where the carriers must "make" and "break" large numbers of trains the hump has come into general use. In accordance with this method, cars are pushed, one by one, out upon a sharp down-grade and these cars, moving under the force of gravity, follow the main track until diverted to one of the many "switch tracks" tapping it. Upon each of these switch tracks will be accumulated cars of a certain grouping, division or otherwise, and when a particular track is almost filled it is emptied by the yard service and, once manned, this "string" of cars is on its way as a train. Hump switching is much faster than the flying switch and seems to result in somewhat lesser injury to car and contents. Yet the use of either of these methods is, at best, destructive, and together they account in no small measure for the heavy increase in damage claims during recent years.

One of the particularly interesting features of the freight service appears in the development of a fast or preference freight movement. Such movement has for its purpose the more rapid handling of freight so classified. To facilitate handling, preference freight is consolidated as far as possible into solid preference trains which enjoy rights superior to other types of freight movement and even to certain local passenger service. This more rapid movement of freight

tonnage has, from the standpoint of the producer, greatly broadened the area available for the production of perishable items; from the standpoint of the consumer it has increased the supply of goods and has thereby lowered prices. This plan has also proved of advantage because it makes possible the handling of rush shipments at a rate of speed impossible under normal method.

DEMURRAGE, RECIPROCAL DEMURRAGE, AND TRACK STORAGE

Perhaps in connection with this discussion it may be well to note certain additional facts with respect to carload shipments. In case the consignor desires to ship in quantity it is necessary for him to requisition from the railway, through its local agent, the number of cars wanted, indicating the time when they are desired and the point upon industry or public teaming track at which they are to be spotted. If, for any reason, when the cars are delivered according to the shipper's request, he fails to complete loading within a reasonable period, usually 48 hours, or if the consignee fails to unload within a similar period after arrival, a charge in addition to the freight rate is assessed. This additional assessment, called demurrage, is intended to minimize the time that the car is employed in handling a particular shipment. The charge, now $2 per day for the first 4 days after the expiration of free time and $5 per day thereafter, is fixed by the carriers except as modified by state or federal action and, in periods of car shortage such as were experienced during the recent world war, may be increased sharply to serve as a further inducement to the efficient use of equipment. In practice, shippers are allowed under the average agreement a credit on cars released in less than 48 hours which reduces the penalties incurred by them upon other equipment detained beyond the period of free time.

Another type of charge levied in connection with the movement of goods is reciprocal demurrage. This charge is fixed by legislative or commission action and is assessed for

failure of the carrier to furnish, within a reasonable period, equipment requisitioned by shippers, or for failure to move loaded cars at an average daily speed which has been prescribed. No federal action has been taken with respect to reciprocal demurrage, but many states enforce it or a penalty of like import against the carriers, with consequent prejudice to shippers in other states which assess no such penalty. This discrimination is particularly evident during period of car shortage if levies are made or fines assessed for failure to furnish equipment. During a time of unusual congestion yet a third charge may be levied, that of track storage. This assesses the consignee or consignor, as the case may be, for the use of track space occupied by the car upon which demurrage is accumulating and is intended to serve as a further spur to the laggard user to place the car, loaded or empty, at the disposal of the carrier at the earliest possible date.

EVOLUTION OF RAILWAY INTERLINE PRACTICE

Although the railways have now perfected a mechanism and developed plans for the efficient handling of interline traffic, a serious problem existed with respect to it during early years. Because of differences in gage and in the construction of equipment, as well as because of the high degree of individualism which characterized early railway enterprise, the interchange of cars loaded with tonnage destined to a point on another line was unknown; at junction points goods had to be transferred to a car belonging to the next line. As a result of this situation there were organized, to expedite freight movements, many "fast freight lines" which owned their own cars, solicited their own business, fixed their own charges, and paid the railways for moving car and lading from point of origin to point of destination. The gradual consolidation of railway properties, the general adoption of a standard gage, and an increased willingness on the part of railway managements to cooper-

ate, resulted in the general displacement of the fast freight lines within a few decades, however, by the cooperative freight lines or car pools. At the disposal of this cooperative organization each participating carrier placed a certain amount of equipment of a given type, which was administered by a general manager chosen by the member carriers. Profits realized were prorated in conformance to a definite agreement, usually upon the basis of the number of cars furnished. But with the further development of cooperation and an increased readiness of the railways to interchange equipment, the importance of the cooperative freight lines in turn declined, the Union Line of the Pennsylvania system, in which various affiliated companies were interested, being one of the last to disappear as a separate organization.

COMPENSATION FOR USE OF "FOREIGN" CARS

During the early years of car interchange, compensation for the use of cars by foreign lines was based upon mileage, the amount varying from ½ cent per car-mile for less valuable equipment, such as stock cars, to as high as 1 cent per car-mile for refrigerator equipment, with certain variations among the different sections of the country. The mileage basis of payment, however, proved unsatisfactory for at least three reasons. In the first place, the mileage accumulated upon a foreign line was often in no measure proportionate to the length of time the home line was deprived of the use of that equipment, particularly in the case of short hauls. In the second place, it was impossible for the home line to know accurately the mileage made upon foreign lines except as a check was made of the records of those lines, a policy which would have been wasteful even though possible. And, finally, if equipment were idle on the foreign line, even under demurrage charge, no revenue accrued to the home line although it was deprived of the use of its equipment.

As a solution of this problem, compensation was put upon

a per diem instead of a mileage basis. This new plan was applied only to railway-owned equipment, however, because the private owners of equipment in railway service were unwilling to transfer to the new basis. This per diem plan has two distinct advantages: the carrier can determine from its records the exact number of days that equipment has been absent upon a foreign line and, without regard to the use to which the car is put by that foreign road—or its non-use, indeed—compensation accrues to the owning line. The principal difficulty, of course, was that of fixing a charge which should not yield too liberal a compensation to the home line and yet, at the same time, should penalize the foreign line sufficiently to provide an incentive for the early return of borrowed equipment. Prior to the recent war the per diem payment for ordinary freight cars was 45 cents, but today, due to the increased cost of equipment, it stands at $1, a charge which is still vigorously protested by the small railways which own little or no equipment and depend largely upon connecting lines for cars. Interrailway settlements governing the use of equipment are made monthly, each railway setting off its debit to a particular carrier against its credits with that carrier, the difference being paid in cash. The problem of settlement could be greatly simplified through the establishment of territorial clearing-houses, but such a movement has, for some reason, gained little headway among the carriers.

PRIVATE CARS IN RAILWAY SERVICE

The discussion of equipment must not be concluded without a brief statement of the problem arising from the ownership by private corporations of many cars used in railway service. These cars, though varied in type, are largely tank, refrigerator, and gondola, ranking in number as named. Privately owned equipment made its appearance at an early date, both because of the failure of the railways to meet adequately the needs of new industries as they developed, and

because many shippers, especially the larger ones, desired to be independent of the carrier in this particular. Two distinct types of organization which own equipment are found. The *private car line* proper is owned by a corporation unaffiliated with an industry; this corporation leases cars, largely refrigerator and stock, to the railway to be used in varied ways, though this equipment is employed largely in the movement of fruit, dairy products, and live stock. The *shipper's car line,* on the other hand, is owned by or affiliated with some industrial concern which uses the cars primarily for the shipment of its own products but, when a surplus is available, leases them to the railway; such cars are then used by the carriers to meet the general demand for such specialized equipment. Conspicuous among the car lines of this type are those used to handle meat, oil, ore, and so forth. The owners of such equipment are compensated, as noted before, on a mileage basis, though in the case of highly specialized equipment, such as tank cars, any excess of empty mileage over loaded necessitates a payment by the owner of that equipment to the railway of a certain fixed sum per mile for haulage in addition to the refund of the mileage payment for each mile in excess of loaded mileage.

ADVANTAGES AND DISADVANTAGES

Certain distinct benefits have resulted from the development of privately owned equipment in the railway field. Besides the fact that specialized equipment has been made available earlier, such lines, except under a policy which is the equivalent of pooling railway-owned equipment, make for a higher degree of mobility and, consequently, for the more efficient use of existing equipment; privately owned cars are shifted from line to line with entire freedom as traffic demands vary. In addition, a high class service has very generally been rendered. However, objections of such weight have been urged by shippers and public that the soundness of countenancing the continuation of such a

"wheel within a wheel" has been called into question. With respect to the private car lines proper it appears that the mileage allowances made have often been excessive, yielding unreasonably high returns upon the investment. In addition to this objection, which applies with equal force to shipper's car lines, other points are urged against this latter type of organization. An excess mileage allowance is here the equivalent of a rebate upon goods shipped by the concerns owning cars. Freight rates have often been adjusted to favor such lines, it is further urged. Then, too, if the carrier relies upon such an organization for specialized equipment, the small independent shipper who depends upon the railway for specialized service sometimes finds himself unable to secure proper equipment in adequate quantity because his competitor, to meet his own need, has withdrawn it from general carrier use. It is also contended that, when such equipment is placed in general service, inspection, as, for example, of refrigerated shipments at icing stations or elsewhere, by representatives of these lines gives the larger enterprise an opportunity to gain too intimate a knowledge of important facts concerning the lesser rival's business—its customers and volume of trade.

Prior to regulation, two additional objections were also levied against the shipper's car line, the one based upon the exorbitant icing charges made, the other upon the advantage which the owner of equipment enjoyed, during a period of car shortage, in the distribution of such equipment as was available. With the fixing of icing charges by the Interstate Commerce Commission, however, and the support given that body by the Supreme Court in the so-called Illinois Central Coal Car Distribution case,[1] in which it was held that privately owned equipment as well as that owned by the carrier must be included in the total to be prorated upon a reasonable basis among those who are in need of cars, these objections were removed. Nevertheless, the weight of the objections still leviable against shipper's lines is such that

[1] 215 U. S., 452.

there is serious doubt of the desirability, from a public point of view, of encouraging further development in that direction; rather, the railways should supply needed equipment.

THE FUTURE OF PRIVATE-CAR DEVELOPMENT

Indeed, for some years the railways not only have made efforts to cut the mileage allowances of the various types of privately owned equipment to a more reasonable level, but they have interested themselves also in procuring additional specialized equipment on their own account. For a time it appeared that, as a result of these two movements, the private car would occupy a relatively less important position in the equipment field with the passage of time. During recent years, however, the railways have shown an increased willingness to depend upon outside agencies for needed equipment, due perhaps to the greater difficulty experienced of late by the carriers in obtaining funds. In consequence of this tendency and also of the fact that the amount of railway-owned equipment has been practically stationary during the past 10 years, the proportion of privately owned equipment to railway-owned now approaches 10%.[1] Yet, should the railways find funds more readily available during the next decade, it might well be that efforts will be made to reduce that figure. And upon the basis of all the facts, it seems that this movement would accord with public interest.

[1] The number of private cars in railway service in 1921 was reported by the Commission of Agricultural Inquiry to be 225,724, those cars being grouped as follows:

Type	Number
Box cars	766
Stock cars	3,878
Coal cars	28,615
Flat cars	1,410
Tank cars	132,465
Refrigerator cars	56,124
All other cars	2,466
Total	225,724

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XIV

FREIGHT CHARGES

Importance of the freight service. The nature and value of the freight tonnage. Increase in the demand for service. Steps involved in the discovery of the freight rate. The development of classification practice. Present classification territories and committees. The Consolidated Freight Classification. Determinants of classification. Commodity rates. Designation of classes. Items listed and number of ratings. Fundamental considerations in the determination of rates. Types and scope of tariffs. Determination of the total charge. Uniformity of classification and rate relationships. The development of freight traffic.

THE elaborate and complete mechanism evolved for the handling of freight traffic has been described. The consideration of the nature of that traffic, of the general method of determining the charge upon individual services, and of certain problems which arise from freight movements remains. To these points this chapter will be successively directed, with particular emphasis upon classification and the determination of rates.

IMPORTANCE OF THE FREIGHT SERVICE

Though the freight service touches directly the every-day life of the average citizen less than certain others rendered by the railway, that service is, both from the standpoint of railway and public, among the most important of those rendered. Upon its regular and uninterrupted performance depends individual well-being and national prosperity; a temporary cessation of service imperils public comfort and, in industrialized and more densely populated areas, even life itself, while a permanent cessation would force an immediate and complete revolution in our entire productive and social organization. Territorial and technical division of labor would largely disappear; the splendid utilization of

resources upon which our industrial progress so largely rests, would be a thing of the past; great cities would dwindle; indeed, intellectual and cultural progress, as well as political unity, would be imperilled. From the standpoint of the carrier also the freight service is of great importance. Quite naturally, revenues derived from the movement of goods vary widely from road to road: in the more densely populated sections of the country this service contributes, at times, little more than half of the total operating revenues, while for certain carriers, particularly those concerned with the movement in great quantities of low-grade traffic, such as coal and ores, the proportion of the total operating revenue derived from freight traffic occasionally runs above 95%. Considering the country as a whole, however, the freight service has yielded for many years approximately 70% of all moneys derived from railway operations, though an even larger proportion of the *net* revenue is derived from the freight service.

NATURE AND VALUE OF FREIGHT TONNAGE

This service is concerned with the movement of an infinite variety of articles. To gain even an approximate conception of the nature of the tonnage handled by American railways, a rough grouping of the many thousands of items is necessary. To this end a grouping of freight moved has long been made by the carriers and so, for many years past, there is available, in the reports of individual carriers and also in the statistical reports of the Interstate Commerce Commission, the tonnage by groups and by districts, together with the proportion which each particular type forms of the total. From year to year these proportions vary little for the country as a whole, though during the past 20 years the proportions of the total contributed by the products of mines and by manufactures have increased, largely at the expense of the products of forests. As might be expected, there are interesting differences in the relative proportions

of various types of traffic between various sections of the country, these differences being merely a reflection of variations in the character of business and industry in the sections. This is true, of course, to an even greater degree as between road and road, the figures for a Granger carrier differing widely from those of a coal road and both varying greatly from those of a carrier operating through an industrialized region. Of the total tonnage moved by American railways, the products of agriculture and the products of forests each furnish approximately 10%, while manufactures constitute approximately 16% of the total tonnage. Products of mines regularly form something in excess of 50% of the aggregate tonnage of our railways. That portion of the tonnage remaining is divided among animal products, miscellaneous commodities, and less-than-carload shipments not included under the general headings given.

For the year closing December 31, 1922, Class I carriers alone reported the movement of 1,840,954,570 tons of freight but, after deducting for duplications due to the handling of certain traffic by two or more roads on interline movements, it appears that shippers delivered 1,023,745,007 tons to the rail carriers for transportation. In the movement of this traffic the railways rendered a ton-mile service of almost 340,000,000,000, the average haul per ton being 331.42 miles. It is impossible to ascertain the value of this tonnage with accuracy, but if values per ton of $50 for products of agriculture, $125 for animals and animal products, $4 for products of mines, $30 for products of forests, $100 for manufactures, and $50 for miscellaneous commodities, be assigned, a value of approximately $40,000,000,000 attaches to the freight moved during that one year. Truly an impressive figure. In the rendition of this service the railways employed approximately 2,500,000 freight-cars and utilized a considerable portion of the 64,000 locomotives in their service, this equipment yielding for the year more than 21,000,000,000 car-miles and in excess of 600,000,000 locomotive-miles. For this service Class I railways received

an aggregate of approximately $4,000,000,000, a sum representing $16,565 per mile of line, $2.16859 per ton of freight handled, and $.01177 per ton-mile of service rendered.

INCREASE IN DEMAND FOR SERVICE

The demand made upon American railways for service, measured in terms of ton-miles, has increased at a much more rapid rate than our population during the past 32 years for which approximately accurate tonnage statistics are available. This demand in 1922 represented an increase of more than 460% over the 61,000,000,000 ton-miles carried in 1888. The ability of the railways to meet this tremendously increased demand for service, with a plant which has increased but slightly in comparison, has resulted largely from greater efficiency of operation. During the period indicated above, the train-load average increased from 176 tons to approximately 630 tons, while the average carload increased from 21 to 25 tons in the 8 years ending with 1922. This increase in operating efficiency has been made possible largely by the greater tractive capacity of locomotives, supplemented by an increase in average car capacity—from 1915-1921 the total tractive capacity of steam locomotives increased 21% with an addition in number of little more than 4%, and the capacity of cars increased 7½% with a numerical gain of but 2½% during the same period.

THE CLASSIFICATION OF GOODS

In the determination of the rate applicable to a given shipment two steps are involved. It is first necessary to determine the classification of the goods and then to discover the rate applicable to this particular class. To the layman this method of ascertaining the rate to be applied seems to involve an unnecessary step. The impracticability, however, of giving in any tariff the various rates to be assessed against individual commodities, moving greater or

lesser distances, is evident. To obviate this tremendous extension of tariffs, the principle of classification was early adopted and its application steadily extended and refined.

Transportation agencies antedating the railway recognized the desirability of classifying shipments. Wagoners quite generally classified goods offered for carriages as "heavy" and as "light"; the former group consisted of commodities whose weight was considerable as compared with bulk, while the latter included those items whose weight was of less consequence than the space occupied. For "heavy" goods charges were assessed upon a poundage basis but for "light" they were levied according to cubical content. Canals carried the system of classification somewhat further, but highly organized and detailed classifications appeared as a result of the development of the railway. Successive steps in the evolution of these classifications seemingly were not often made a matter of record, though a document issued by the South Carolina Railroad in 1855 indicates that goods were then classified by it into four groups. Among other items, the first group included such a variety of articles as "bonnets, saddles, pianos, and tea"; the second, "dry-goods, glass, raisins, turpentine, feathers, certain spices and stoves." In the third class appear numerous items, among which were "butter, lard, tobacco, dry hides, tin, copper, machinery and boxes, guns, wool, crockery, and melons," while the fourth class covered "bacon, sugar, nails, ice, coal, green hides, stone, hay, tan bark, dry fruits, car springs, copper ore," and so forth. In addition to these classified articles were fowls at so much per dozen, and live stock at so much per head. As late as 1873 it is recorded that the Louisville and Nashville railroad classified goods under three heads, the first covering bulk goods, the second goods of considerable weight, and the third live stock. In other sections of the country classification was developed little or no further than in the South.

With the rapid development of railway mileage and the extension of traffic which began in the decade following the

Civil War, there came an equally rapid elaboration of classifications. This elaboration, however, was of an individual character rather than uniform and general in its nature, with the result that, in a short time, well-nigh intolerable conditions developed. Indeed, it is declared that there were, at one time, 138 distinct classifications in Trunk Line territory alone, and this number had been reduced only to about 130 at the time of the adoption of the Interstate Commerce Act of 1887. In the face of a rapid development of through traffic, this complication of classifications proved inconvenient to the carriers and highly objectionable to the shipper, both because of the uncertainty which resulted as to the rate applicable to a shipment moving over two or more lines and because of the wide variations in treatment received by competing concerns at the hands of different railways.

PRESENT CLASSIFICATION TERRITORIES

The economic necessity of simplification, together with the passage of the Interstate Commerce Act, led the railways in the Eastern territory to adopt a common classification in 1887 and, within the next two years, similar steps

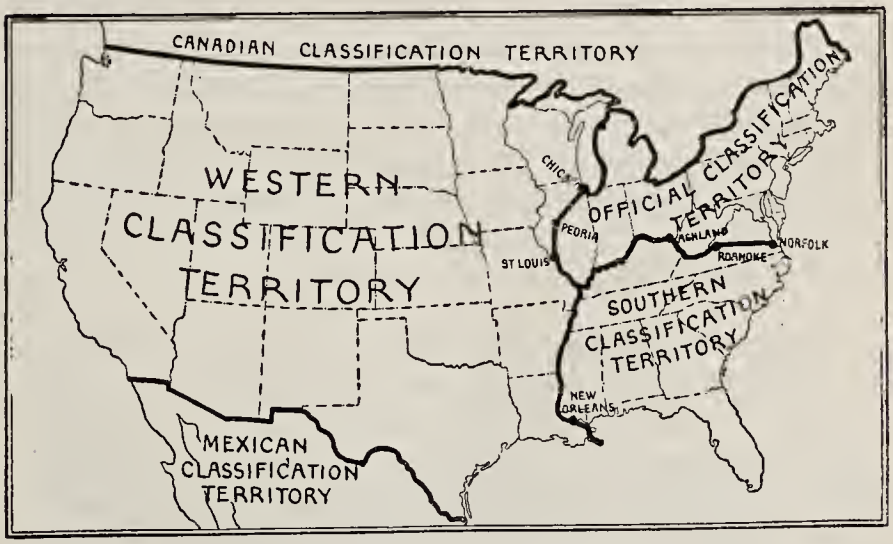

Figure 21: Classification territories

were taken in Southern and Western territories. This gave to the United States the three major classification areas which continue to the present time, known as Official, Southern, and Western. The territory governed by the Official classification is that portion of the United States lying north of a line from Norfolk through Petersburg, Lynchburg, and Roanoke to Ashland, Kentucky, and of the Ohio River, and east of Lake Michigan and a line drawn from Chicago, through Peoria, to St. Louis, thence to the mouth of the Ohio River. The Southern classification controls south of Official territory and east of the Mississippi, while the remainder of the United States is governed by the Western classification. Generally speaking, these three classifications cover all shipments made within their respective territories, but certain exceptions and overlappings should be noted in passing. Intrastate shipments in certain states are governed by state-prescribed classifications which vary in character from the publication of mere exception sheets in North Carolina to complete classifications in other states, such as Illinois. Iowa, Georgia, and Nebraska also exercise extended control in this particular. Another problem arises in connection with the movement of goods from one classification territory into another. In such a situation, the classification applicable at point of origin or at point of destination governs the entire movement on joint through shipments but, in the case of movements upon through rates which represent the aggregate of the several locals, each factor is governed by the classification controlling it.

CLASSIFICATION COMMITTEES

Dating from the establishment of these three classification territories, classification lists were long published separately for each. These lists were not constructed by the railways themselves but, rather, by committees acting in behalf of the "participating" lines, so called because they were willing to participate in collective action and to accept the rulings

of the committee. Until a comparatively recent date these committees were composed of traffic officials of various lines; they met periodically and possessed merely the power to recommend to the carriers operating in their respective territories certain classifications which should apply. This system, however, proved unsatisfactory for several reasons, with the result that, in 1914, the Western classification committee was so reorganized as to consist of a small number of men not identified with any carrier concerned. This committee sits constantly for the consideration of classification matters and possesses the power to fix the classification of various items without reference to its respective principals. In 1916 the Official classification committee was similarly reorganized by the carriers, but the power to fix classifications without reference to the railways represented was not given. Perhaps because of the high degree of individualism among carriers of Southern territory little progress has there been made toward reorganization or the centralization of authority.

Through the operation of the machinery which has existed from time to time in the various districts, the classification books were issued at irregular intervals, with little reference by one committee to the methods or principles of another. Each of these issues was modified in both Official and Southern territories by numerous exception sheets published by individual roads, both non-participating and participating, as well as by the supplements published by the committees themselves at frequent intervals. In Western territory modifications were found only in the official supplements and such exceptions as were published by non-participating carriers.

THE CONSOLIDATED FREIGHT CLASSIFICATION

Further movement toward unification was imminent, however, and, following an extended hearing held before the Interstate Commerce Commission during 1919, it was offi-

cially suggested that a consolidation of the three large classifications into a so-called Consolidated Freight Classification be made. This was accomplished, effective December 30 of that year. In bringing about this consolidation little effort was made to enforce uniformity throughout the three territories in the classification of individual items; it was felt that this should be the result of gradual change, though substantial unity in rules and descriptions was attained. This classification is published by the Consolidated Freight Classification committee, composed of the chairmen of the various territorial classification committees, with headquarters at Chicago, although under the present plan all powers of positive action still remain with the territorial committees. The only significant change incident to this policy was the bestowal of final authority upon the committees in Official and Southern territories in the determination of classifications similar to that enjoyed by the committee in Western territory. But it is interesting to note that this authority was later withdrawn from the Southern committee by the participating carriers. The present Consolidated Freight Classification Number 3 is the third issue of this volume within a period of three years and stands as Official Classification Number 47, Southern Classification Number 46, and Western Classification Number 58. During the period controlled by this issue all freight will move subject to the classification therein given except as official supplements may be issued from time to time, or as individual roads in certain sections may modify that classification through the publication of individual exception sheets covering particular items. In order to give a clearer conception of the nature of a classification certain items from the latest issue are given in Table 17, on the opposite page.

DETERMINANTS OF CLASSIFICATION

In the classification of individual items, traffic officials and classification committees are governed by two major

TABLE 17

SPECIMEN ITEMS FROM CONSOLIDATED FREIGHT CLASSIFICATION NUMBER 3

Articles	Ratings Official	Southern	Western
Beet Pulp:			
Dry			
In bags or barrels, L. C. L.	5	D	4
In packages or in bulk, C. L. min. wgt. 34,000 lbs.	6	D	C
Wet			
In bags or barrels, L. C. L.	5	6	4
In packages or in bulk, C. L. min. wgt. 36,000 lbs.	6	6	E
Cycle Racks (Bicycle Stands)			
Iron or Steel			
S. U., loose or in packages	1½	D1	D1
K. D., or folded flat, in boxes, bundles, or crates	3	1	1
Wooden			
S. U., loose or in packages	D1	D1	D1
K. D., or folded flat, in boxes, bundles or crates	1	1	1
Furnaces (Assayers)			
In barrels, boxes, or crates, L. C. L.	2	1	3
In packages named, C. L., min. wgt. 30,000 lbs.	4	1	5
Paper Weights			
Glass, in barrels or boxes	R25	2	2
Metal, in barrels or boxes	2	2	2
Other than Glass or Metal, in barrels or boxes	1	1	1
Willowware, N. O. I. B. N.			
In bundles	3t1	3t1	3t1
In crates	3t1	D1	2½t1
In barrels or boxes	3t1	D1	D1

considerations, cost and "what the traffic will bear." Of these, the greater consideration is accorded the latter. This greater weight given the ability principle undoubtedly is due in large measure to the part which it played in years past, prior to effective legislation, and to the force which it has thereby gained through custom and precedent, rather than to any conscious preference given to it today. However, because it is the obligation of a traffic official to so

adjust rates as to yield adequate revenue to the carrier, he will always give greater consideration to what a particular type of traffic can afford to pay than will the operating official, whose prime guide will tend to be the relative costs of handling different types of traffic.

To say, however, that cost and "what the traffic will bear" serve as guiding principles in the classification of particular items means little because of the exceedingly general character of the statement. More specifically, the classification of goods is determined by such considerations as space occupied, value, risk, quantity shipped, and competitive conditions governing. That space occupied should be given consideration in classifying articles is wholly reasonable. A car loaded to the roof with hay would not approach in weight the maximum capacity of the car; loaded with iron or steel products, or even grains, this same car would afford the railway a far greater paying weight. In view of this consideration, items occupying considerable space receive a higher classification and the rating of the same article is oftentimes considerably lowered, as in the case of pressed cotton, when it is shipped in such form as to materially lessen bulk. Value is a second consideration of importance in determining the classification of goods. The greater the value of a particular article, not only the greater will be the cost of handling, due to a higher degree of care and protection which must be given it en route and heavier loss if the article be damaged in transit, but also the greater is the ability of the item to bear a high charge.

Another basic factor in determining the classification of an individual item is risk. Risk may take various forms: risk of breakage, risk due to the perishable character of the goods, or risk incident to the nature of the commodity—its inflammability or its explosive character, for example. It should be noted, though, that certain of these considerations involve not only the risk incident to the goods themselves but also the danger to other shipments involved in its handling. Still another important consideration is quantity.

Like risk, this is essentially a cost factor. If goods are shipped in less-than-carload lots it is the universal custom of American railways to handle the various packages at terminals and transfer stations with their own labor force. If goods be moved in carload quantities, however, all handling costs are borne by shipper and consignee, and the railway is also relieved of much work incident to transfers en route. The justification of a lower rate upon carload movements than upon less-than-carload shipments is therefore clear, though care must be always exercised that the difference in rates be not so great as to unduly prejudice the interests of the shipper whose volume of business is insufficient to enable him to take advantage of carload ratings. Finally, competition must be considered in fixing the classification of goods. If keen rivalry exists between different carriers or, as is more generally the situation, between different types of carriers, such as rail and water, items suitable for movement by both enjoy a lower classification than would otherwise govern. This factor, as does value, emphasizes ability considerations rather than problems of cost.

COMMODITY RATES

Competition may not only result in giving a particular item a lower classification than would otherwise be enjoyed, but it may even be so keen as to cause the elimination of an article from the classification lists entirely. Other factors may also occasion the substitution of a commodity rating for a standard classification. Among these are the inability of a particular type of traffic, such as sand or gravel, to bear a charge based upon a classification rating, and the desire of a carrier to encourage the development of a particular type of traffic by giving for a period a lower rate than classification would permit. In determining the status of a particular item an examination of the classification book alone is not sufficient, therefore, because the rating there given may have been superseded by the extension of a com-

modity rate, purposed to accord the item a degree of preferential treatment impossible under classification control.

DESIGNATION OF CLASSES

Guided by the considerations which have been indicated and by conditions pertaining in the various districts, the classification committees endeavor to assign to each article a reasonable rating and to lay down certain general rules governing the movement of items of traffic which are included in the classification book. To distinguish among the various classes, letters, numbers, and multiples are generally used, the distinguishing designations differing somewhat among the various classification territories. In official classification territory articles are divided into eight classes generally, these being known as, 1, 2, Rule 25, 3, Rule 26, 4, 5, and 6, the "rules" given being classifications which accord rates 15% and 20% less, respectively, than the numbered classes preceding. In Southern territory the ordinary classifications number 10, the designations being 1, 2, 3, 4, 5, 6, A, B, C, and D. In Western territory the designations employed are similar to those in Southern except that one number is displaced by a letter, the designations being 1, 2, 3, 4, 5, A, B, C, D, and E. In addition to these numbered and lettered groups, there are also certain multiple classifications in each of the three territories, these covering items which, because of bulk, value, risk, or other cause, are listed higher than first class. These multiples run 1½, 2, 2½, 3, 3½ and 4 in all three areas with the addition of a classification intermediate between 1 and 1½, namely 1¼, in Official territory. These multiple classifications are shown as 1½, D1, 2½t1, 3t1, and so forth.

ITEMS LISTED AND NUMBER OF RATINGS

Thus far nothing has been said to indicate that the number of items listed in a classification, and the number of

ratings therein given, may vary widely. However, even a casual examination of a freight classification shows that the number of ratings greatly exceeds the number of different items listed. Indeed, in 1919, with not more than 6,000 different items listed, 15,730 ratings were given, of which 10,790 were for less-than-carload movements, the remainder covering the transportation of goods in carload quantities. Yet more important than additional ratings given upon carload quantities is the variety of ratings resulting from various methods employed in packing particular goods for shipment. Even such a common article as lard is given seven ratings; the particular one applicable is determined by method of packing and quantity, whether "in metal cans, partly jacketed" or "completely jacketed," in "metal cans in crates" or "in barrels or boxes," and so forth. Such differences are explained largely by variations in the risk incident to the movement of the goods. With the development of the sciences and the arts the number of items listed in a classification will increase, but the number of ratings will increase much more rapidly because of new methods of shipment and because of the increased extent to which it is found desirable to give carload ratings to meet the growing demands of industry and commerce.

FUNDAMENTAL CONSIDERATIONS IN RATE-MAKING

But, just as one blade of a shears would be useless without the other, so a classification of various items offered for movement by freight would be useless without a tariff or rate book to be used in connection therewith. The discussion of the general problems underlying the determination of rates applicable to the various classes and the description of the nature of the tariff sheets so evolved remain, therefore.

In the final determination of its tariffs a railway must give fundamental consideration to the relationship which it seeks to maintain between revenues and expenses. This

relationship will be likely to vary with the form of control exercised. Under government ownership and operation, rate schedules might be so adjusted as to yield a profit upon the business as did the Prussian railways before the war, or, on the other hand, it might be considered preferable from a social point of view to operate the property on a cost basis, with a consequent lower schedule of charges. Indeed, under such a system of control it is conceivable that it might be held consistent with public good to handle the total business at a loss—for a figure equal to or even less than the operating expenses incurred, the deficit being met by taxation. On the other hand, under a system of private ownership and operation but two conceivable relationships between revenues and expenses can be considered as permanent. If private interest is permitted to work out its policies free of public control, a system of rates would be imposed upon the public which would yield more than a fair return; in fact, monopoly gain. Subject to public control, however, railway rates are usually fixed upon a cost basis, with aggregate revenues sufficient to meet all necessary expenses, operating and capital. Inasmuch as the American railway system is privately owned and operated, the frequently conflicting desires of the owners to realize a maximum surplus profit and of the public to secure service at minimum cost are the basic considerations in the determination of rates.

In accord with the general policy of regulation in the United States, the carrier initiates and adjusts rates, subject to governmental approval. In the determination of the particular rate the railway traffic official upon whom this responsibility rests is guided by certain general considerations. The *maximum* charge which can be assessed upon the item is, of course, that which the shipper will pay rather than dispense with the service, while the *minimum* long-time rate which can be legitimately fixed is the additional cost of the specific service. Between these extremes the railway official has a wide range of choice, and his conception as to

the point at which the charge ought to be fixed will be determined largely by the particular rate theory which he accepts as basic and the weight he attaches thereto. But regardless of his conception as to what constitutes a "good" rate, before reaching a final decision he must give attention to certain extraneous factors, for the best rate, like the best tax, is the one which works best. Under competitive conditions the charge over other routes must be given careful consideration. The revenue needs of the carrier constitute another influence which will, in times of adversity, result in a higher rate and, in times of prosperity, a lower one. Then, too, the carrier must at all times give weight to the long-time interest of railway and shipper—even though certain conditions seem to justify heavy charges at a particular time, it may be an act of wisdom for the carrier to pocket a temporary loss rather than risk "killing the goose that lays the golden egg." A final factor which will influence the determination of a rate is the various public requirements which exist, requirements establishing absolute limits as well as relationships of rates.

COMPLEXITY OF RATE-MAKING

The magnitude of the problem involved in rate-making is little appreciated by the lay mind. Perhaps a better realization of its tremendous complexity may be had if we imagine all tariffs destroyed and all knowledge of them wiped out. In the face of such a situation let us assume a group of men to be charged with the construction of freight tariffs covering the movement of innumerable items between an infinite number and combination of points, and under existing industrial and competitive conditions. Even though such a body possessed a knowledge of general principles and procedure in rate-making, it would be expecting the impossible to hope that, within any brief period, a workable system of rates could be devised. The magnitude of the problem of determining a rate upon a new item of commerce

or modifying an old tariff is greatly lessened by the existence of other tariffs with which comparison can be made. However, in the determination of a single rate it is necessary, before a definite figure can be fixed, that traffic officials shall agree upon the general policy which shall govern the movement of the particular item in question and that a large fund of information concerning the ability of the traffic to bear, the tonnage immediately and prospectively available, and the competitive situation, be known. But even with such extensive information at hand, any new rate fixed or old rate modified, represents merely the most accurate estimate that can be made without actual experience as to what the rate should be. The experimental character of original rates is clearly attested by the fluctuations in rate structures preceding stabilization.

TYPES AND SCOPE OF TARIFFS

The traffic official, in the determination of tariffs governing movements with which his railway is concerned, must construct two types of tariffs as to the nature of the goods covered. The first of these and by far the most significant, is the so-called class tariff, which gives the rate applicable upon each class of goods between various points. The commodity tariff, on the other hand, instead of showing the rate applicable between two points upon that large group of items which constitutes a class, gives the rates between various points or groups of points upon single items which have been removed from the classification and accorded special consideration. Class tariffs and commodity tariffs may be either local or joint as to scope; the former covers movements upon a single line, whether these points be adjoining stations, or be as far removed from each other as Chicago and New York or Chicago and San Francisco, while the latter covers the movement of traffic between points situated on different lines and is the result of an agreement between, or among, the participating carriers.

However, joint tariffs have not been issued to cover many movements; in such case interline shipments move at the sum of the local rates.

DETERMINATION OF THE TOTAL CHARGE

The method of determining the charge upon any given shipment can now be clearly described. If the shipment moves upon a class rate, the first step in ascertaining the total charge is the determination of the classification of the goods. With the destination known, the agent will then turn to that tariff, either local or joint, which gives the rates applicable between the point of origin and the point of destination. If the shipment weighs more than 100 pounds, it will move at a total charge secured by multiplying the rate by the number of cwt. to be transported. If the shipment weighs less than 100 pounds, however, the charge will often be that for the full 100 pounds, though when this rate is high, a lower figure may be fixed as a minimum charge. In the case of carload shipments moving under class rates, the total charge for the movement is determined by multiplying the class rate applicable by the weight of the shipment, the minimum weight of the car being the smallest multiplier used. If the shipment moves under a commodity rate, instead of employing the classification book and the rate book, the agent will use a commodity tariff, local or joint, and, since commodity rates infrequently apply except to carload shipments, the total charge will be ascertained in the same manner as in the case of carload shipments at class rates.

UNIFORMITY OF CLASSIFICATION

Two problems which touch the determination of the charge have received considerable attention from railways and regulative bodies alike, uniformity of classification and uniformity of relationship in rates among the various classes.

Because of their importance a brief discussion of each will be given. The movement toward uniformity of classification throughout the entire United States dates back to the Interstate Commerce Act of 1887. During several years succeeding the passage of that Act the railways, at the behest of the Commission, made efforts to attain a greater degree of uniformity. Such efforts were attended with little success beyond the establishment of the three territorial groups, and it was not until 1907 that the matter was again given consideration. An investigation made by a commission of railway officials resulted in the suggestion that certain preliminary steps be taken looking toward the unification of classification rules, of minimum carload weights, and of the descriptions of items. That the carriers might work more effectively to this end, a committee was organized in 1908 to carry the work forward. In 1910 the Interstate Commerce Commission was given control over freight classifications, and further pressure was exerted in the direction of uniformity.

There are certain obstacles, however, which tend to offset the gains resulting from the simplicity of a uniform classification and the greater ease of detecting discriminations. Of these, the differences in economic and commercial conditions and the general readjustment of rates which must necessarily follow any extensive changes in classification are the more important. Early in 1918, the movement toward unification was furthered by an inquiry made of the carriers by the Interstate Commerce Commission as to why a complete unification of rules and description of articles in Official, Southern, and Western classifications was not possible in the near future. Following extended hearings such a general unification was suggested, and from this movement came the present Consolidated Classification. Although progress was made in the unification of rules and descriptions, there remained a great diversity in the classification of articles among the various territories as Table 18, taken from the Commission's 1921 report, indicates.

TABLE 18

COMPARISON OF CLASSIFICATION RATINGS

Ratings Not Uniform	LCL	Percentage	CL	Percentage
Alike in Official and Southern	1,369	12.69	671	13.58
Alike in Official and Western	2,012	18.65	1,435	29.05
Alike in Southern and Western	1,906	17.66	349	7.07
All different	1,303	12.08	1,531	30.99
Total	6,590	61.08	3,986	80.69
Ratings Uniform				
Total	4,200	38.92	954	19.31
Total Ratings	10,790	100.00	4,940	100.00

However, the Consolidated Classification Committee has been ordered to proceed with the unification of ratings as rapidly as is feasible, and instructed that any rating which is now, or shall be, uniform in all territories must not be changed except to a rating which shall also be uniform in all territories. That steady progress is being made in the direction of uniformity is shown by the statement of the Interstate Commerce Commission in its report for 1923 that most of the 112 increases and the 675 reductions made in ratings during the preceding year were in the direction of uniformity. Of these reductions, more than 60% represented the establishment of carload ratings, in addition to the any-quantity ratings which alone had been offered previously. Steps also are being made to harmonize state classifications with those governing the area of which those states seeking to control classification are a part. From all these facts, it appears that the movement toward unification promises success. Constant pressure exerted by the Interstate Commerce Commission and the willingness of the carriers to comply, as shown by the intention of the Classification Committee in Official territory to reclassify all items upon the basis of the 10 classifications suggested by the Commission, will accomplish much. The regular publication, side by side, of the classifications of a particular item in the various territories will also tend to point out discrepancies and make for a more uniform adjustment. Finally, with the further development of newer portions of the

country, economic and commercial dissimilarity among the various sections will diminish, and this will lessen accordingly the importance of one of the major barriers to uniformity of classification.

UNIFORMITY OF RATE RELATIONSHIPS

The problem of securing throughout the entire country a relatively constant relationship between rates upon the various classes has received little attention in the past, and the application of a scale of rates in various portions of the United States which should bear a definite relationship to all other portions of the United States has received even less. However, in the investigation made relative to the unification of classifications, the Interstate Commerce Commission suggested rather definitely not alone the desirability of adopting a 10-classification system for the entire United States, but went even further—it indicated that the percentage relationship among rates upon the various classes should conform closely to the following standard, the Class I rate being 100%: 100; 85; 70; 60; 45; 35; 30; 25; 22½; 20. Under this plan it is suggested that all less-than-carload traffic be confined to the first four classes and that many of the articles now moving under commodity rates and under exceptions to the classifications be assigned ratings upon the basis of such a scale that would not substantially modify charges now applicable. During the period of federal control, the Railroad Administration gave serious consideration to an even more radical step toward the standardization of rate relationships—the construction and application of a uniform rate scale for the entire United States. The scale tentatively suggested is shown in Table 19 on the following page.

An interesting peculiarity of this rate table appears in the higher rate assessed against shipments given class A rating than those rated as 5th class. Though the full table cannot be given here, since mileage differences above 100

TABLE 19

UNIFORM RATE SCALE FOR THE UNITED STATES [1]

Percentages	100	85	70	60	47	51	40	30	25	20
Classes	1	2	3	4	5	A	B	C	D	E
Miles	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate
5	25	21	18	15	12	13	10	8	6	5
10	27	23	19	16	13	14	11	8	7	5
15	29	25	20	17	14	15	12	9	7	6
20	31	26	22	19	15	16	12	9	8	6
25	33	28	23	20	16	17	13	10	8	7
30	35	30	25	21	16	18	14	11	9	7
35	37	31	26	22	17	19	15	11	9	7
40	39	33	27	23	18	20	16	12	10	8
45	41	35	29	25	19	21	16	12	10	8
50	43	37	30	26	20	22	17	13	11	9
55	45	38	32	27	21	23	18	14	11	9
60	46	39	32	28	22	23	18	14	12	9
65	48	41	34	29	23	24	19	14	12	10
70	49	42	34	29	23	25	20	15	12	10
75	51	43	36	31	24	26	20	15	13	10
80	52	44	36	31	24	27	21	16	13	10
85	54	46	38	32	25	28	22	16	14	11
90	55	47	39	33	26	28	22	17	14	11
95	57	48	40	34	27	29	23	17	14	11
100	58	49	41	35	27	30	23	17	15	12
200	88	75	62	53	41	45	35	26	22	18
300	112	95	78	67	53	57	45	34	28	22
400	132	112	92	79	62	67	53	40	33	26
500	150	128	105	90	71	77	60	45	38	30
600	166	141	116	100	78	85	66	50	42	33
700	178	151	125	107	84	91	71	53	45	36
800	190	162	133	114	89	97	76	57	48	38
900	202	172	141	121	95	103	81	61	51	40
1000	214	182	150	128	101	109	86	64	54	43

actually vary from 5 to 25 miles as 105, 110, and so forth, and 925, 950, and so forth, the figures shown indicate clearly the relative significance of terminal and movement costs in the determination of the total rate. It is unlikely, however, that any such standard scale will be adopted in the United States for years to come—in fact, it will be long before it receives even serious consideration.

[1] Since it was obviously impossible to apply the scale uniformly throughout the entire United States, it was suggested that, in areas of high traffic density, the rates should be but 75% of the scale; while in areas of low density, such as the Rocky Mountain states, the rates were to be above those here given.

DEVELOPMENT OF FREIGHT TRAFFIC

Another problem in connection with the freight service relates to the development of additional traffic. To the extent that any carrier operates upon the basis of increasing returns, the clear advantage of such added traffic is evident. Yet even in the case of those roads that are operating at maximum efficiency capacity, the possibility of adding further traffic will justify the intensive development of the property at an earlier date. Various methods have been used by the railways to secure such additional tonnage. Advertising has been employed moderately, but "copy" has been directed toward the solicitation of passenger traffic rather than of freight. Off-line offices have been maintained at strategic points to gain readier access to available traffic. A third method of obtaining a share of available business is that of direct solicitation by freight agents of various rank and degree. Such methods, however, are essentially competitive in character, and represent a struggle among carriers for existing business.

In contrast to such endeavors are the efforts put forth by the carriers intended to increase the total tonnage available for movement. Here the work of agricultural and industrial agents is particularly worthy of mention. These representatives of the railways, through experimentation, investigation, and intelligent publicity frequently contribute much to the economic progress and prosperity of the areas served. In this particular many carriers have done significant work, but perhaps none are more worthy of mention than the Northern Pacific and Great Northern which, under the leadership of the great James J. Hill, played a most active part in the development of that northern and northwestern territory served by them. Another important type of developmental work appears in the rendition of special services, such as the operation of live-stock or fruit "specials," and even of the "peddler car" which makes possible the local distribution of perishable products in small

quantities. Much has been accomplished by individual railways in winning traffic from competitors and much has been accomplished in the stimulation of agriculture and industry through the developmental activities of the various carriers. Opportunities still remain, however, particularly in the latter field, and closer cooperation between the railways and the government in this particular should accomplish much of good for both carrier and public.

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XV

PASSENGER SERVICE AND CHARGES

Differences in freight and passenger traffic. Types of trains in service. Character of through service. Classification of tickets. Ticket accounting. Privileges accorded to travelers. The classification of passenger service. Class service in the United States. The growth of the Pullman service. The Pullman contract. Determination of Pullman fares. The excess cost of a "super" service. Comparative passenger service statistics. Service versus efficiency in the passenger field. The development of additional traffic. Elimination of abuses. The problem of competition.

DESPITE the tremendous economic importance of the freight service to the public and to the carrier, the passenger service looms larger in the public mind. To the passenger service the railways also attach a significance quite out of proportion to that part of the total revenue produced by it. This high place in the estimation of society is due largely to the influence which rapid and cheap movement of persons has upon the development of culture and the stimulation of intellectual activity. Contacts have been enormously increased by more efficient movement and, in consequence, the human mind has developed the breadth and power which are essential to continued growth. Likewise, the readier transportation of persons has furthered the territorial extension of political units and aided in maintaining those units against disintegrating factors operating from within and hostile forces attacking from without. From a railway standpoint, the service represents the maximum of speed and comfort attainable under given conditions and is therefore a source of great pride. It offers an opportunity for the artist's touch in a workaday field, a field largely occupied by the commonplace. Then, too, the passenger service is often regarded by the railway as an advertising medium; high-class service is held to be an effective magnet

for competitive freight traffic just as poor service is deemed likely to lessen the proportion of such tonnage received.

DIFFERENCES IN FREIGHT AND PASSENGER TRAFFIC

Passenger and freight service differ widely in many respects. One of the most conspicuous of these differences appears in the policies followed in the movement of traffic. Although a small quantity of freight moves on definite schedule, tonnage is normally moved as the accumulation of goods justifies; even frequent variations from the few fixed freight schedules elicits little protest because the public does not conceive "making regular time" to be a function of freight movement. Passenger movements, on the other hand, to be of any considerable worth, must follow a definite schedule; regular service must be offered day after day, whether traffic is heavy or light and slight variation from schedule arouses public criticism. Closely allied to the problem of fixing and maintaining passenger schedules is another, that of regularly meeting connections, which is of prime importance to the traveling public and occasions no little difficulty and expense to the railway. Then, too, the passenger and freight services vary widely with respect to the considerations required of the operating staff. In the case of the former, safety is of fundamental significance, but in the latter it is of primary concern to the railway alone because of its influence upon loss and damage payments. For one a high average rate of speed is required while for the other speed is but an incidental factor. In the handling of persons comfort and convenience loom large while they are of no concern in the movement of goods.

Another point at which passenger service differs from freight is in the method of handling at terminals. Perhaps the fact that passenger rates vary directly with the distance as freight rates do not, reflects the belief of traffic officials that the movement charge in the case of persons should be "loaded" with no fixed terminal factor because

"passenger traffic handles itself." However, this apparent economy is generally balanced, if not outweighed, by the abnormal expenditure demanded for the accommodation of passengers at stations. Furthermore, passenger traffic is more nearly balanced than freight, if normal passenger traffic alone be considered. Yet, if a study be made of special traffic, particularly of excursion movements, it will oftentimes be found that passenger movements are less balanced than freight; in the one case a predominant tonnage movement flows regularly in a certain direction while in the other the number of passengers moving each way is, though seasonally unbalanced, equal for the year. The evils of such unbalanced traffic are no less than if it were unbalanced for the entire year.

Another interesting contrast between the two types of service appears in a comparison of the trend of rates in the two fields. While freight rates show a sharp decline until the war period as compared with a generation ago, passenger rates have, during that period, dropped but little; yet, on the basis of rates practically equivalent to those of a generation ago, passenger business has shown a smaller margin of profit to the railways generally than has freight business with declining average charges. This fact is due largely, of course, to the inability of the railways to avail themselves of increased economies in the movement of passengers as they have in the movement of freight. While the average freight-train load increased approximately two and one-half times in the past 25 years, the average number of passengers per train increased but 40%, this slight comparative increase being the result of several factors, significant among which are the slower increase in the volume of passenger traffic and the constant necessity of adding trains to meet the new demands made upon the carriers by patrons. Then, too, the movement of passenger traffic on regular schedule stands as a permanent bar to the rapid increase of efficiency in the passenger field.

The relative importance of the revenues derived from the

freight and passenger service has already been indicated, but it is not amiss, perhaps, to restate the fact that freight revenue contributes almost three-fourths of the total operating revenues of American railways, while the passenger revenue totals less than one-fourth. Upon individual roads this item varies from little more than 3% on certain conspicuous "tonnage" lines to slightly less than 50% upon carriers which operate through densely populated sections and are known as "passenger roads." This disparity will diminish as the United States becomes more densely populated and as the population is more evenly distributed, though many years will elapse before passenger revenue will total even half that derived from freight operations.

TYPES OF TRAINS IN SERVICE

In the movement of passenger traffic, various types of trains are operated. In general, trains may be classified as "local" and "through," the former concerned primarily with the movement of passengers for short distances, the latter with the transportation of persons between distant centers. Through movement often involves operation over the entire length of an extended line, as from Chicago to New York, Chicago to New Orleans, Chicago to San Francisco or Seattle. In handling local traffic several types of trains are employed. In the vicinity of large cities certain trains are concerned solely with the movement of the "commuter," but the typical local passenger service is that rendered by trains stopping at practically all stations and covering, in the course of the daily "run," seldom less than 100 miles, and often three times that distance. The "local" usually carries only day coaches and renders a service in which railways take no pride, despite the fact that upon its character depends largely the interests of those along the line. Local service is also rendered by the so-called "mixed" train, which combines both the freight and the passenger function. Service of this kind is seldom offered on the main line, ex-

cept by the "local" or "way-freight," but it is characteristic of branch-line operations—and upon the poorer branch lines such service alone is offered. During recent years yet a third type of local service has gained prominence—that rendered by the motor car. Indeed, it seems certain that such service will play an increasingly important role upon lines where service of the old type cannot be rendered economically, or where, for other reasons, the passenger automobile and motor bus have shown themselves particularly inimical to railway revenues. Indeed, were it not for the conservatism which too often characterizes railway management, it is probable that this method of moving passengers would have received much wider acceptance during recent years: a single light car, motor driven, enjoys a distinct advantage from an expense standpoint over even the short locomotive-drawn train, however ancient or diminutive and, therefore, incapable of main-line service that locomotive may be.

CHARACTER OF "THROUGH" SERVICE

"Through" service on American railways differs from local service in two significant particulars. More powerful locomotives, a superior main-line roadway, and fewer stops make possible a much higher average rate of speed. Indeed, an important consideration incident to through service *is* speed, and this feature is advertised widely in the solicitation of traffic. The second distinguishing feature lies in the character of the service offered. In this field is employed not only the highest grade of standard coach equipment but also a large number of cars built for the purpose of rendering an extra service to the patrons of the road. In fact, many of the important through trains are made up largely or wholly of Pullman equipment. These through trains are usually operated over the tracks of a single railway corporation or its subsidiaries though, in certain instances, they are scheduled over the lines of independent connecting carriers. Such interline service is invariably of

high character with respect to both speed and equipment. Conspicuous among such jointly operated trains are the Overland Limited between Chicago and San Francisco via the Chicago and North Western, the Union Pacific, and the Central Pacific; the Golden State Limited, between Chicago and Pacific coast points via the Chicago, Rock Island and Pacific, the El Paso and Southwestern, and the Southern Pacific; and the Dixie Flyer between Chicago and points in the South, via the Chicago and Eastern Illinois and the Louisville and Nashville. With the further development of cooperation and the growth of through traffic, such unusual instances may be expected to become characteristic of American long-distance passenger service.

Since passenger traffic is largely self-directed at terminals and junction points, the mechanism necessary to handle it is much simpler than that for the handling of freight. Because of the smaller number of trains and the far smaller number of cars in each, the problem of "making and breaking" trains at terminals and division points is relatively simple. Indeed, the task of handling equipment in the coach yard, where unused cars are stored, oftentimes involves little more than attaching a switch-engine to a train which has just finished its journey and pushing that train into the yard to await its trip out when, after thorough cleaning and re-equipment, it is again ready for use. The station problem is also less difficult than for freight traffic, though the modern policy of constructing immense and almost palatial passenger terminals in large cities has thrown upon the carriers a burden of expense quite out of proportion to the revenue importance of the business involved.

CLASSIFICATION OF TICKETS

In the handling of freight traffic the issuance of a considerable number of papers for each shipment is necessary. However, because of the nature of the passenger business the ticket is the only document employed in connection with

the movement of passengers. Tickets vary widely in type and it is rather difficult to classify them under a few heads, though two major groups are distinguishable. The great proportion of the tickets sold authorize movement between points upon the issuing line and are known as local tickets, but others, termed interline tickets, are issued to cover movements over portions of two or more lines. These local and interline tickets are of varied character. Most common among these is the regular first-class ticket, either one-way or round-trip. This ticket is available the year round and sells at the standard rate. A second type of ticket of importance is the so-called excursion ticket, which is sold at a reduced rate for round-trip movement during certain specified periods. Such tickets may have a relatively brief life or, as in the case of summer or winter movements, may be valid for several months. Another type of ticket is that which is offered at a reduced fare for either one-way or round-trip movement, here being included commutation, immigrant, and harvester travel, as well as tickets sold to the clergy, to indigent persons, and to children. A fourth type of travel moves upon miscellaneous authorizations, among these being the drover's ticket, the conductor's memorandum issued as a receipt for cash fare, and the pass, trip or annual.

TICKET ACCOUNTING

The peculiar character of the ticket compels the exercise of great care in distributing and accounting for all tickets issued, and this is true whether they be of the type which authorizes movement between two named points or whether they be forms in blank to be completed by the selling agent. Ticket stocks are distributed through the office of the auditor of passenger revenues and a frequent check is made of the sales records and the unsold stocks of the various local agents against the record of tickets charged. The sale of tickets rests primarily with the various local agents along the line, though sales are also negotiated by

uptown ticket offices and other agencies established for the convenience of the public.

The responsibility for collecting tickets rests upon the passenger conductor and it is his obligation to see that no person travels on his train without a ticket or other authorization for transportation. To secure a more accurate record of passenger movements and to check against sales indicated, each conductor must forward to the office of the auditor of passenger revenues at the end of each run all tickets, stubs, and other records of movement collected by him, together with summary statement of those authorizations in his conductor's report.

PRIVILEGES ACCORDED TO TRAVELERS

Certain privileges incident to the possession of an authorization for transportation should be noted. Perhaps the most significant of these is that of the free transportation of a limited quantity of baggage. In the United States the baggage privilege permits the passenger to have moved, free of charge, personal effects weighing not in excess of 150 pounds for every full ticket possessed by him, half that amount being permitted upon half-tickets. This privilege is extended to the passenger with carrier liability attaching to the railway up to a fixed sum, generally $100, such liability beginning and terminating under essentially the same conditions as in the case of freight movements. This baggage privilege seems reasonable, even generous, when compared with the much more limited free baggage allowance of European railways. Another privilege of some importance accorded the possessor of certain types of tickets is the stop-over. Stop-over privileges are sparingly accorded to the holders of one-way tickets but are extended rather generously to purchasers of round-trip tickets, whether of the regular or excursion type. Stop-overs are accorded most readily at points of great historical or scenic interest or at important commercial centers.

CLASSIFICATION OF PASSENGER SERVICE

Recognition of the principle of classification in the rendition of passenger service is common throughout the world, though markedly less so in America than elsewhere. In general, three classes of service are offered to patrons, these —first, second, and third class—being supplemented by certain special services such as special excursions, workmen's trains, and so on, and occasionally even by a fourth class. Where such classification is made, the great bulk of travel is third class. For such traffic railways provide a slow service, with inexpensive or superannuated equipment which offers few comforts or conveniences to the passenger. However, the difference in the charge for this and for the higher class service is such that the poorer classes of people gladly avail themselves of it. Second-class service oftentimes affords the traveler equally fast time as the first, the difference lying primarily in the character of the accommodation and in the social distinction implied. This service, however, is used by a relatively small proportion of travelers except in a few countries where a large middle class exists. First-class service elsewhere corresponds approximately in speed and general conveniences afforded to the regular first-class service offered in this country, though certain minor differences may give first-class travel abroad a small advantage in comfort and speed, besides a marked social advantage over service of the same class here.

CLASS SERVICE IN THE UNITED STATES

The rather marked contrast between the classes of service offered abroad and the relative absence of such classifications in America is striking. Although lower-grade services, such as colonist and immigrant service as well as excursion opportunities, are offered in the United States with a relatively poor type of service, these form an insignificant portion of American passenger traffic. Indeed, little

effort has been made by American railways to effect a definite classification of standard traffic; the only evidence of such a movement was the second-class ticket which was sold, particularly in the West, for a number of years at a rate somewhat below that charged for first-class movement. The actual service enjoyed by such second-class passengers did not differ in practice from that afforded first-class traffic, however, and the number of persons availing themselves of this lower rate for second-class service was so small that the railways did not feel justified in continuing the sale of such tickets. Therefore, the only existing classification of passengers in the United States appears in the differentiation between those moving first class and those who, by an extra payment, avail themselves of special privileges afforded by Pullman service, or of the unusual advantages of the "extra-fare train." This difference in price rests largely upon differences in cost of service; the line between first-class and super-first-class patrons cannot be so clearly and finely drawn, as it is in European countries, upon the basis of the social or financial status of those availing themselves of these two types of service.

The justification of classification in the passenger field has been urged upon both economic and social grounds. Because the service rendered is enjoyed by the individual paying for it, the principle of "ability to pay" can much more easily and much more justly be invoked here. Then, too, there are those who are able and willing to pay for a higher type of service than can be maintained as standard. On the two grounds, therefore, a differentiation is urged for economic reasons. The social justification for differentiation of service applies strikingly in countries where social classes are sharply marked and, under such conditions, may even be regarded as necessary. Such a justification, however, seems to have little basis of fact in America where, despite wide differences in wealth, class lines are not definitely marked and the antagonism toward anything tending to establish such lines is conspicuous. To think of a work-

man's wife and family traveling in a first-class carriage in England with some member of the nobility would require a considerable stretch of the imagination, but many times daily there will be found traveling side by side, in perhaps any but the de-luxe trains with heavy additional charges, almost equally divergent elements in American social life. If any development of classification comes in the United States it will come through emphasis upon the economic justification and in spite of the antagonism toward anything smacking of social distinction.

THE GROWTH OF THE PULLMAN SERVICE

Such "super" service as is now found on American railways is rendered almost exclusively by the Pullman Company—indeed, so completely identified has this type of service become with the name that it is normally referred to as "Pullman service" as distinguished from coach service. The history and development of this service, together with the peculiar relationship which it bears to the railway company, are both of general and of transportation interest. Despite even the relatively short lines and local movements which characterized early railway operations in the United States, it was realized within a few years after the beginning of the railway that certain services of an "extra" character were needed. As early as 1836 an effort was made to provide sleeping quarters for passengers en route, but this early attempt, as well as the endeavors of the next 20 years, was crude and unsatisfactory. Indeed, it was not until George Pullman undertook his work for the Chicago and Alton, in 1859, that the development of satisfactory sleeping cars began. Under the leadership of this man, progress in the direction of specialized services was rapid and, since 1867, the Pullman Company has been furnishing American railways with sleeping cars, dining cars, club cars, and other passenger equipment of an increasingly higher type. So successful has the Pullman Company been in establishing

itself in the railway field that it now controls all sleeping-car service rendered throughout the United States except upon several of the larger railways.

The peculiar position occupied by the Pullman Company with respect to the railways has been largely the outgrowth of two factors. The first of these, and by far the more important, is the greater economy to the individual railways which results from renting or leasing equipment under the terms of the typical Pullman contract than through the ownership of that equipment. From season to season passenger traffic varies widely, this being particularly true of those roads which have a large amount of special traffic, excursion or resort. For individual lines to provide reasonably for the peak load would necessitate a heavy outlay for equipment, much of which would lie idle for many months, but, with the privilege of requisitioning equipment from and returning it to the Pullman organization at will, the railway is far more happily situated. Another factor which undoubtedly has operated to further Pullman control of the special-service field has been the desire of the railways to be relieved of many problems and responsibilities which would otherwise devolve upon them. Whether the Pullman Company, a "wheel within a wheel," will continue to dominate the field is uncertain; if the railways are consolidated into larger systems and if, perchance, each system operates in territories where traffic demands differ rather widely, it may prove advantageous for such systems to own the special equipment used by them rather than to pay generous sums for its use. The profitableness of Pullman rentals is indicated by the remarkable expansion of the Pullman Company, decade by decade, out of earnings, in the face of liberal regular dividends.

THE PULLMAN CONTRACT

The contract between the Pullman Company and the railway varies from road to road. Of all contracts it may be

said that the railway agrees to carry all Pullman employees and officers free of charge while engaged in the prosecution of the business; to furnish adequate ticket quarters; to haul, switch, and inspect cars; and to pay for all running repairs, whether made by the railway or in the Pullman shops. In return, the Pullman Company agrees to furnish an adequate supply of equipment; to supply such equipment not only with materials needed but also with such servants as are necessary; and to restrict the purchase of space upon the basis of tickets held, requiring a minimum of one ticket for the reservation of a full section and two tickets for a drawing room. Compensation is the point at which Pullman contracts differ widely. In the case of weaker lines which are in no position to purchase and operate their own special equipment, the Pullman Company drives a relatively hard bargain, this section of the contract often calling for what amounts to a guarantee of a certain gross revenue per car per year for all equipment used on that line, with the receipt by the Pullman Company of all moneys in excess of the minimum figure. Stronger lines appear to be able to make better terms and often succeed in not only fixing a lower minimum figure per car-year but even in compelling the Pullman Company, as a price of obtaining the contract, to share with the railway all sums received by it in excess of the minimum assured.[1]

DETERMINATION OF THE PULLMAN CHARGE

The basis of determining Pullman fares is largely the time such service is utilized, though distance is also a factor. Other considerations, such as the density of the traffic, the

[1] In testimony before the Interstate Commerce Commission in the Pullman surcharge hearing, the following division of revenues from the Pullman service between that corporation and the Atchison, Topeka and Santa Fe Railway Company, effective January 1, 1923, was indicated: to the Pullman Company the first $9,000 per car-year; to the railway the next $1,500; between $10,500 and $14,500, half to the railway; and above $14,500, three-fourths to the railway. Under the previous contract the division point was $7,250 and the Santa Fe received half in excess of $8,750.

cost of operation, and even the relation which the passenger fare via a given route bears to the fare charged over another route, also enter. Berth charges are determined primarily by the time during which the accommodations are used, while seat rates vary, in general, with the distance. The Pullman service gives rise to two troublesome problems: one is the establishment of a proper relationship between the charges for upper and lower berths, while the other is that of securing from the Pullman passenger, as compared with the coach passenger, a sum commensurate with the greater cost of his movement to the railway. The first of these problems, and the simpler, was definitely settled by the Interstate Commerce Commission in its decision that upper berth rates, despite all considerations of cost and lesser use, should stand at 80% of those charged for lower berths. The second, however, remains unsolved.

It is only within recent years that serious consideration has been given to the problem raised by the greater cost of handling a passenger traveling in Pullman equipment than of handling the same passenger by coach. This greater cost results both from the lower average number of passengers per car-mile carried in Pullman equipment and from the much greater weight of Pullman cars as compared with railway-owned coach equipment. The first step toward meeting this problem was taken during the period of federal operation when an extra one-half cent per mile was imposed upon all passengers who occupied Pullman space. Following the period of federal control the Interstate Commerce Commission authorized the continuance of an extra charge for the benefit of the railway, the charge in this case, however, being assessed on the basis of the Pullman fare, the figure being 50% additional. Against this surcharge much complaint has developed recently, so the final solution of the problem will be difficult to foretell. Nevertheless, it is only reasonable to expect that the railway will be permitted to demand from the passenger traveling in special equipment a sufficient amount in excess of the regular

mileage charge for coach movement to compensate for the extra cost incurred. It is anomalous that the more fortunately situated Pullman passenger has been permitted to ride at the partial expense of the coach traveler, even so long as he has been, by regulative bodies.

COMPARATIVE PASSENGER SERVICE STATISTICS

The importance of the passenger business to the average citizen, together with certain tendencies in passenger field, is well shown by statistics relative to this service. The number of journeys taken by the average American compares poorly with the number taken by the typical western European. The average number of trips per person in the United States each year for the past 10 years has been approximately 11, while the pre-war average of France stood at 13, of the United Kingdom at about 27, and of Germany at about 29. This apparent lesser patronage is offset, however, by the greater average length of journey in the United States. These figures were approximately 8, 14, and 22, for the United Kingdom, Germany, and France, respectively, before the war, and 34 for the United States. The net result of this greater average length of journey per passenger for the United States is that the total distance traveled annually per capita is somewhat greater for this country than for western Europe. The tendency in the United States with respect to the number of persons carried, total passenger-miles, and the average length of journey, is evidenced by increases of approximately 150%, 250%, and 50%, respectively, for the period 1888-1922.

Figures for the United States as a whole, however, fail to reflect the wide differences which exist among the three territories for which statistics are compiled. Of the total number of passengers carried in 1922, more than 65% were handled in Eastern territory, and about 23% in Western, though the latter contributed more than 35% of the total passenger-miles of service for that year as compared with

barely 51% for the Eastern. This divergence in the percentages suggests the wide difference in the average length of journey per passenger which appears in fact: the average for Eastern territory was about 28 miles while that for Western was more than 55, Southern showing an average of almost 43. Such figures explain the considerable difference in the average total revenue per passenger in the various districts, the figures for the year 1922 being $0.80, $1.45, and $1.82 for Eastern, Southern, and Western territories, respectively. The density of passenger traffic per mile of line is, as might be anticipated, much greater in Eastern territory than elsewhere, the average figures for that region being 320,342 as compared with 116,046 for Southern and 102,479 for Western.

SERVICE VERSUS EFFICIENCY

One of the clearest proofs of the tendency of the public to demand, and of the railways to offer, an increased quantity of service instead of working toward greater efficiency in the handling of traffic in the passenger field is brought out by a comparison of the rate of increase in the density of passenger traffic per mile of line and the rate of increase in the average number of passengers per train. From 1888 to 1921, the former figure increased 135%, while the latter increased only 68%—from 40 to 67, a sorry contrast with the tremendous gain in the efficiency of freight handling noted in the preceding chapter. Another striking fact shown by statistics is the relatively constant average revenue per passenger-mile in the United States until 1916, since which time it has advanced to $.03027 in 1922. From 1888-1916 the lowest figure was $.01937, in 1908, and the highest $.02349, in 1888, with no other figure higher than $.02167 during the entire period. This constancy is especially interesting in view of changes in traffic conditions, of the wide-spread passage of state two-cent fare laws, and so forth. It might be added, however, that passenger revenues

were increased greatly by the enactment of anti-pass legislation, coincident with the two-cent fare "wave."

DEVELOPMENT OF ADDITIONAL TRAFFIC

There are three important problems which have appeared in the passenger field. Of these, perhaps the further development of traffic stands first, particularly because of the opportunity which the low average number of passengers per train gives for augmenting revenues greatly with little increase in expense. Various methods are employed by the carriers to increase the volume of passenger traffic. One of the most familiar is the resort to advertising, these campaigns being conducted through newspapers, by means of descriptive pamphlets, by posters, and so on. Such advertising has been relatively unimportant in amount, however, and has been directed too often toward the solicitation of business already existent, rather than toward the creation of new business by advertising matters of interest. Yet, distinct possibilities exist in educating the American public to travel more often and farther. Well-located ticket offices in the larger cities and the maintenance of a force of traffic agents whose function it is personally to solicit business, also represent a form of advertising as well as a way of making travel easier.

The railways are now encouraging excursion traffic of both a special and a seasonal character, and the development of such traffic will feature passenger service to an increasing degree in the future. This will be particularly true of seasonal and resort traffic as the American public becomes more "travel-broken." Closely akin to excursion traffic are the "conducted tours," an innovation which is making its appearance upon railways peculiarly well situated to attract sightseers. Another type of traffic which has been developed in an extensive way by those railways operating into large cities is the suburban traffic. The necessity of dwelling "close in" that work may be reason-

ably accessible, has been greatly lessened by the operation of high-class suburban service. This accessible area has been so extended by the railways that it now has a usual radius of from 30 to 40 miles.

To stimulate increased passenger movements, American railways have centered their attention primarily upon the betterment of the service. Lessened road time and a higher quality of service have been the lures commonly used to draw traffic, but such means represent the traffic man's competitive weapons and fail to solve the *real* problem in the passenger field—the creation of *more* business for all roads. Such an end must be gained largely through the graduated reduction of fares, a course which seems distinctly distasteful to the average passenger traffic official. True, such reductions are characteristic of the efforts of the railways to increase seasonal and resort traffic, but they have generally been sparingly made, the reductions often being too slight to accomplish successfully the purpose in mind. No extended use has been made of regular reduced fares for a service somewhat below standard even in an experimental way and, though the opportunities for the development of a class service in the United States are less than in European countries, there certainly is economic justification for efforts in this direction.

ELIMINATION OF ABUSES

A second problem incident to the passenger traffic, but one of which both phases have been largely solved, involves abuses which occasioned great outcry a score of years ago by the public and the railways respectively, the "pass" and ticket "scalping." Of the two, the "pass" was the greater public danger; therefore this problem was first met. In the "good old days" every shipper of significance, every important man in a community, every public official from district attorney and county judge to governor and occupants of the Supreme bench, were gladly furnished transporta-

tion free; indeed, to pay fare was a clear confession of unimportance in the business and social structure. However, the discrimination involved, as well as the corrupting influence of the practice, brought a veritable avalanche of anti-pass legislation. In consequence, the use of passes is now restricted, both as to interstate and intrastate movements, to those giving essentially full-time service to the railways and to their immediate families, together with certain other limited groups. The other evil, that of selling transportation at less than regular prices, still persists, despite strong railway effort to eliminate it and rather general public cooperation. In early days the railways themselves participated in the practice: they sold tickets to brokers at "bargain" prices, which agreements prevented them marketing directly to the public at less than a fixed price, the understanding being that the broker might sell them at less than the standard rates. This practice—"scalping," so-called—was purposed, of course, to attract additional business to the particular carrier. "Scalping" is largely confined today, however, to the merchandising of unused portions of through and round-trip tickets. Not only does this practice lessen the revenues of the carrier but it represents a breach of faith on the part of the original purchaser of the ticket, since many of the tickets purchased and so handled are non-transferable in character. Furthermore, the "scalper" all too often resorts to dishonest practices, such as altering dates, erasing marks, and plugging holes punched by such agents of the carrier as may have handled the ticket. During the period of federal control the practice was practically stopped, but it has again appeared on a small scale. However, a few years should see its complete elimination as a commercial enterprise.

THE PROBLEM OF COMPETITION

A final problem of increasing difficulty is that of competition. The earliest type of competition of importance to

which the steam railway was subjected in the passenger field was that of the electric railway. This agency, serving an urban constituency, expanded later into the suburban field, where it first became a serious competitive factor. When it entered the interurban field it constituted a still more serious menace to the steam carrier. Enjoying the advantages which result from the use of electric power—the easier adjustment of the unit to the immediate traffic need, greater cleanliness, and ability to coordinate with street railways and thus to reach down-town sections of the cities as well as residential districts—this competitor seriously threatened for a time. During the last few years, however, financial disaster has dampened the ardor of the supporters of such enterprises and the higher price level has forced an upward adjustment of fares which makes travel costs more nearly comparable over steam and electric railways. Nevertheless, because of lower construction and lower operating costs, this agency continues to be at least a potential menace in the short-haul field. Certain steam railways have endeavored to meet the problem by acquiring control of competing electric lines, but the ultimate solution probably lies either in surrender of much local traffic to such lines and further concentration of attention by the steam railways upon long-distance traffic, or in the electrification of lines operating through densely populated areas and into the cities, with the consequent displacement of the small electric roads in the field of local business.

Another and, at the present time, more threatening competitor than the electric railway is the automobile. This agency has thus far escaped the burden of its total cost of operation, since publicly constructed and maintained highways are used. Lower outlays, together with other factors, enable the auto-bus and the individual car to move a tremendous quantity of local traffic which formerly went by rail. Even in the case of traffic moving for several hundred miles this type of competition has been keenly felt by many roads. Local trains often travel almost empty during ex-

tended periods of good weather and good roads, but during stormy times carry a paying load. To withdraw such service greatly inconveniences the few who must use it regularly and elicits a loud protest from those who wish it at their convenience. Yet, to continue it involves the carrier in steady and, ultimately, heavy losses. The discovery of a solution of this problem which will protect the railway against undue loss, yet reasonably satisfy public demands, is giving regulative bodies no little difficulty, and, as yet, little progress has been made. The ultimate solution, however, seems to lie in the assessment of all proper costs against automobile traffic; then, with perhaps the substitution of the gasoline-driven single car for the short train on lighter runs, a "finish fight" upon a cost basis between the competing agencies would offer the railway reasonable prospects for success.

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XVI

THE MINOR SERVICES—MAIL AND EXPRESS

Place of the railway in the mail service. Development of the railway post-office. Closed-pouch service. "Blue-tag" mail. Volume of railway mail. The terminal post-office. Establishment of the parcel-post service and method of determining rates. Regulations and privileges. Volume and financial results. The problem of railway mail pay. Present basis of compensation. Brief history of the express business in the United States. Organization and administration. The old contract between the railway and express company and the new agreement. Disposition of "net income for division" by the express company. Demand for regulation. The new classification. Rates made upon a distance basis. Determination of the charge. The future of the express business.

Besides the two major services already discussed, the American railway offers various incidental services. Of these, but two—mail and express—are outstanding, each having a significance to the public quite out of proportion to carrier revenues therefrom. Of the two, the mail service, although yielding, in 1922, less than 1.64% of total railway operating revenue as compared with approximately 2.58% for the express business, is the more important to society. For that reason a discussion of its outstanding features will be presented first.

The Mail Service

The value of this service to society is impossible of measurement. The regular and cheap movement of freight is of tremendous economic and social importance and the worth of the passenger service is great, but to lose that close intellectual contact which our present mail service affords, to lose the socializing and broadening influence exerted by newspapers and periodicals which circulate cheaply and in enormous numbers among people in all walks of life, would

be a social calamity of the first magnitude. Yet an adequate mail service does more than render invaluable assistance in the promotion of public intelligence and the maintenance of closer personal relationships; it serves a most important end in business life. Occasional interruptions of mail movements for but short periods indicate to the business man the heavy losses which would follow even a crippled service, much less a complete cessation of that service.

Just as the demands of freight and passenger service upon the railways increase more rapidly than population, so does the demand for postal service and facilities. No accurate measure of the volume of mail exists, but the increase in postal revenues may be accepted as a rough measure of the growing demands made upon the post-office department. Departmental records show that increase from 1888 to 1923 to have been in excess of 910%, though the population of the United States increased during those years but 83%. The increase in the complexities of business relationships and the rising level of culture represent, therefore, a more accurate index to the need for additional service than does the growth of population.

PLACE OF RAILWAY IN THE MAIL SERVICE

However important the mail service may be, it would concern a student of railway transportation little were it not that a large portion of the mail has long been handled by the railways. Indeed, in the annual report of the Postmaster-General for 1921, it is estimated that 90% of the weight of all mails is carried by them. This movement of mail by railways dates back to 1834, almost to the beginning of the railways themselves. For some years, however, serious doubt was entertained by many as to the ability of the railways to compete with the stage-coach, either in average speed or in promptness. In fact, certain early railway lines failed so signally in the handling of mails that their contracts were not renewed and the service was again

performed by the stage-coach. But gradually the veteran stage-coach was compelled to give place and within a comparatively brief time it was relegated to such portions of the country as were not served by rail. In the discussion of the mail service to follow, an effort has been made to discriminate between those functions and problems which are essentially governmental in character and those which sufficiently concern the railways to justify consideration here.

As indicated, the service of the railway is of fundamental importance in the transportation of mail, though this work is supplemented by certain other agencies which also perform an indispensable service. Movements are made over electric railways, the mileage so utilized in 1922 being 8,359. Steamboats and other power boats also function, their mileage being, for the same year, 47,271. Even the aeroplane has been pressed into service upon certain routes over which there is a sufficient demand for exceptionally fast service to justify its establishment. Another important type of service supplementing that of the railways is that rendered by the so-called Star Routes. These extend largely from railway points or ports into the "hinterland" and, although the quantity of mail carried in this way is not great, the importance of the service to those who occupy the outposts of civilization and to business enterprise would be difficult to exaggerate. In 1922, 10,664 such routes were in operation, covering 153,566 miles. The shortest of these routes are but a few miles in length, while the longest of them cover distances of many hundreds of miles through the wilds of Alaska.

DEVELOPMENT OF THE RAILWAY POST-OFFICE

When the railway mail service was established there was no thought that it should extend beyond the movement of sacks of mail. As early as 1840, however, consideration was given to the possibility of sorting mail en route. In 1847 the Postmaster-General, through a representative, made a

study of the English scheme, but his conclusion, that such a plan would prove too expensive for the American mail service at that time, killed effectually for a period any positive movement in that direction. In 1862, however, the question was again brought forward, this time by William A. Davis, assistant postmaster at St. Joseph, Missouri. To expedite the departure of mails from St. Joseph to the many points westward which were served by stage-coach and rider, he conceived the idea of equipping cars for mail distribution en route, so that the mail would be ready for immediate dispatch upon its arrival at that frontier post. With the consent of the Post-Office Department a trial was made on the Hannibal and St. Joseph; an old baggage coach, crudely fitted with racks and boxes, served as equipment. The experiment proved a success, but it was not until 1879 that the railway post-office car became fully recognized by law as a part of our postal system. Since that year the use of this type of car has steadily increased until, in 1921, the Postmaster-General stated there were made in them more than fifteen billion distributions and redistributions of all types of mail, with a distribution accuracy of 99.993%. Indeed, a large part of all the mail carried by the railways is distributed or handled by the railway mail service en route. The Postmaster-General says in his 1921 report:

> The service is one vast traveling post-office functioning simultaneously throughout the entire country and in which the necessary separations, distributions, and dispatches of the mails that would otherwise be made in the post-office are made in the swiftly moving railway post-office cars. Thus the mails are advanced in delivery the greatest possible time and the post-offices are relieved of a work the magnitude of which they would be unable to handle.

Although preference is given the transmission of letters and daily papers, all other classes of mail matter, including the circular, catalog, and parcel-post merchandise mails, are handled with due regard to their importance to the public. There were in operation on June 30, 1922, 212,956 miles of

railway post-office service, with 274,467,223 miles of annual travel.

All equipment employed in the railway mail service is owned by the carriers. This equipment consists of two general types: ordinary baggage or express cars which serve adequately for all closed-pouch movements, and cars especially designed to facilitate the sorting of mail en route. Plans and specifications, covering in detail every feature entering into the construction of cars used for the distribution of mail, are worked out by the Post-Office Department and the cars are built in accordance with such plans. To make easier the adjustment of such special equipment to the varying space needs of the Department, and to make possible the conversion of such special equipment to ordinary baggage or express service, fixtures in the newer cars are so arranged as to make possible this adaptation at a minimum expense of time and money. For many years railway post-office equipment was built of wood, but because of the frequent loss of life of mail messengers in wrecks, due to the location of the car in the train, legislation has compelled a gradual change from wooden to steel equipment, the proportion of mail cars in service in 1922 with steel underframe or entirely of steel being almost 54%. In that year there were employed 5,161 full and apartment mail cars, besides the baggage and express equipment used in connection with closed-pouch movements.

CLOSED-POUCH SERVICE

In addition to the railway post-office service which handles a great part of the mail moved by these carriers, there is rendered, also, a closed-pouch service of two types. Between large centers in various sections of the country it is possible to move mail in quantities, and this fact has given rise to the fast mail train. Such trains carry cars loaded to capacity with mail in closed pouches and, at times, render an incidental passenger service, though the more important

of these trains handle mail alone. These mail trains have right of way over all other traffic and operate at a high rate of speed. Generally the privilege of handling through mail is one which is eagerly sought by the railways, success or failure in securing a contract for a particular period, as a result of speed tests, being the occasion of joy or regret to railway officials and employees alike. The operation of the "fast mail," like the de-luxe train in passenger service, is a source of great pride to the railway man. The second type of closed-pouch service, which consists of mail carried in locked pouches in baggage car and even caboose, is far less conspicuous but nevertheless of great importance. It is usually found on branch lines or is rendered by "mixed trains" on main lines, the pouches being unloaded and picked up, station by station, en route.

"BLUE-TAG" MAIL

Another interesting type of mail movement and one little known to the general public was termed by the Department "blue-tag" mail. This consisted of periodicals and other similar material and moved by fast freight in carload lots. In 1918 a total of 3,398 carloads of such mail was handled with a total weight of 115,546,350 pounds, but in 1921 this amount dropped to 2,767 carloads with a total weight of 98,451,716 pounds. This decrease indicates more than a mere decline in this type of traffic—it reflects the more effective utilization by postal authorities of regularly authorized mail-space units, for which payment had to be made without regard to use. On October 1, 1921, this service was discontinued and such matter is now handled upon the regular mail trains at a saving to the Department.

VOLUME OF RAILWAY MAIL

The importance of the railway in the rendition of adequate mail service cannot be exaggerated. In moving 90%

of the total weight, mail was carried in 1923 over 231,619 miles of line in the United States, with a total number of miles of regularly authorized space units of 574,621,534. It is impossible to ascertain the actual weight of the mail moved under the new basis of payment, though it is estimated that in 1917 826,090,715 ton-miles of service were rendered and in 1922 the records show that the total amount of second-class mail received at pound rates alone was 1,103,778,741 pounds and that, in addition, 59,201,897 pounds of such matter moved free of charge within the county in which it was mailed. The compensation paid the railways for this service has been increasing year by year, though that increase has been less rapid than the growth in postal revenues; the payment of $93,500,000 in 1923 represented an increase of but 80% over 1913, while postal revenues increased during the same period by about 100%. The railway proportion of the total governmental outlay for mail movement appears in the fact that all other agencies received in 1922 but $35,034,082 in return for, in general, much more costly methods of handling.

THE TERMINAL POST-OFFICE

A feature of the general mail service, so intimately connected with the railway function that it cannot be ignored, is the terminal railway post-office. Such offices are generally located in the large railway passenger terminals and handle an enormous amount of mail. The heavy demand upon them in the rapid movement of mail is indicated by a recent contract made by the government for approximately 350,000 square feet of floor space near the Union Station now under construction in Chicago and by arrangements to secure the use of 750,000 square feet of floor space adjacent to the Pennsylvania terminal in New York and of a large additional floor area at the Grand Central Station in the same city. These terminal offices are usually leased from the railways by the government and both supplement the railway post-

office service and serve as centers for the dispatching of storage mail.

ESTABLISHMENT OF THE PARCEL-POST SERVICE

Mail matter has long been classified, this classification resting upon both social considerations and cost. These classes are known in the United States as first, second, third, and fourth, though the consolidation of the latter two has been recommended by the Postmaster-General. In addition to the classified revenue matter carried, there is also a large amount of mail handled free of charge for various governmental departments. However, since the problem of classification is one which concerns the Post-Office Department, not the railways, no discussion either of its justice. or of the bases recognized need here be presented. Indeed, were it not for the peculiar relationship which the fourth-class service, known as parcel-post, bears to the express and even, in certain cases, to the freight service, no discussion of postal administration would here be germane. But the increasing significance of this parcel-post service requires that a description of the system be given.

Agitation for the establishment of a parcel-post system in the United States dates back many years. Opposition to it came mainly from three groups. The express companies opposed it as a dangerous competitor and offered perhaps the most effective political obstacle to its adoption. Indeed, it was once said facetiously, "There are five reasons for the failure to establish a parcel-post system in the United States: The Adams Express Company, The American Express Company, The United States Express Company, The Wells Fargo Express Company, and The Southern Express Company." The second source of opposition was the small retailer who permitted himself to be frightened by the "mail-order bogie." The third group opposing the establishment of this system was small and composed largely of those conservatives who felt that the government should not thus

POST OFFICES BY STATES—FLORIDA, FRANCE, GEORGIA.

No.	P. O. & County.	Unit	Zone.
79135	°Stuart†, Palm Beach	1394	....
79905	(Sulphur Springs, R. Sta. Tampa)	1593	....
79137	Sumatra*, Liberty	1838	....
79141	Sumica*, Polk,..	1493	....
79139	Summerfield†, Marion	1590	....
79139	Summer Haven*, Saint Johns	1489	....
79308	Sumner*, Levy..	1640	....
79140	Sumterville* Sumter	1591	....
79,43	Sutherland†, Pinellas	1642	....
79144	Suwanee Valley, Columbia	1638	....
79147	Switzerland*, Saint Johns	1538	....
79149	Sydney*, Hillsborough	1593	....
79150	Taft*, Orange...	1492	....
79800	°Tallahassee†, Leon	1783	....
79398	Tallevast, Manatee	1644	....
79900	°Tampa†, Hillsborough	1593	....
	Stations.		
79905	Sulphur Springs (Rural).		
79901	°West Tampa		
79902	°Ybor City†. (Ind.)		
79903	No. 1. 79277 No.		
7928	No. 3. 79372 No.		
79381	No. 5. 79421 No.		
79904	No. 7.		
79151	Tangerine*, Orange	1541	....
79153	Tarpon Springs†, Pinellas	1642	....
79413	Tasmania*, Glades	1495	....
79154	Tavares†, Lake.	1541	....
79309	Tavernier, Monroe	1449	....
79157	Telogia*, Liberty	1838	....
79158	Terre Cela*, Manatee	1643	....
79160	Thelma;, Taylor	1739	....
79161	Theressa*, Bradford	1539	....
79182	Thonotosassa*, Hillsborough	1592	....
79155	Tidewater, Levy	1640	....
79163	Tigerbay*, Polk.	1543	....
79164	Tillman*, Brevard	1442	....
79186	°Titnsville†, Brevard	1441	....
79168	Trentou†, Alachua	1639	....
79169	Trilby*, Pasco..	1592	....
79170	Tropic*, Brevard	1442	....
79171	Tucker*, Pasco.	1642	....
79173	Turkey Creek*, Hillsborough	1593	....
79177	Umatilla†, Lake.	1541	....
79502	(University, Sta. Gainesville)	1589	....
79429	Useppa Island‖*, Lee	1595	....
79180	Utopia*, Okeechobee	1444	....
79191	Valkaria*, Brevard	1443	....
78295	Valparaiso†, Okaloosa	1987	....
79325	Valrco*, Hillsborough	1593	....
79446	Vandolah*, Hardee	1543	....
79183	Venice*, Manatee	1594	....
79184	Venus*, Highlands	1494	....
79506	Verna*, Manatee	1594	....
79196	Vernon*, Washington	1937	....
79187	Vero†, Saint Lucie	1393	....
79191	Vilas*, Liberty..	1838	....
79192	Vista, Levy.....	1890	....
79379	Volusia*, Volnsia	1490	....
79193	Wabasso*, Saint Lucie	1393	....
79194	Wacissa*, Jefferson	1738	....
79195	Wade*, Alachua	1639	....
79332	Wagner*, Seminole	1491	....
79197	Wakulla*, Wakulla	1788	....
79199	Waldo†, Alachua	1589	....
79203	Wall Springs*, Pinellas	1642	....
79428	Walnut Hill*, Escambia	2137	....
79204	Walton*, Saint Lucie	1394	....
79206	Ward*, Leon....	1838	....
79207	Warrington†, Escambia	2088	....
79208	Watertown†, Columbia	1838	....
79209	Watson, Liberty	1837	....
79210	°Wauchula†, Hardee	1543	....
79211	Wankeenah*, Jefferson	1738	....
79212	Wausau*, Washington	1937	....
79399	Waverly*, Polk..	1543	....
79214	Webster†, Sumter	1591	....
79215	Weirsdale*, Marion	1541	....
79217	Welaka*, Putnam	1540	....
79219	Wellborn†, Suwanee	1638	....
79221	Westbay*, Bay.	1938	....
79224	°West Palm Beach†, Palm Beach	1395	....
79901	(West Tampa†, Sta. Tampa)	1593	....
79226	West Tocoi*, Clay	1539	....
79227	Westville*, Holmes	1937	....
79229	Wetappo*, Bay.	1838	....
79230	Wewahitchka*, Calhoun	1838	....
79231	White City*, Saint Lucie	1394	....
79232	Whitehouse*, Duval	1583	....
79233	White Springs†, Hamilton	1638	....
79235	Whitney*, Lake.	1541	....
79518	Wilbur-By-The-Sea‖, Volusia	1440	....
79237	Wilcox*, Alachua	1639	....
79238	Wildwood†, Sumter	1591	....
79279	Willeford*, Alachua	1639	....
79240	Williston†, Levy	1590	....
79241	Wilma*, Liberty	1838	....
79458	Wilson*, Brevard	1441	....
79243	Wimauma*, Hillsborough	1593	....
79327	Windermere*, Orange	1542	....
79244	Windsor*, Alachua	1589	....
79245	Winfield*, Columbia	1638	....
79247	Winter Garden†, Orange	1541	....
79248	Winterhaven†, Polk	1542	....
79382	Winter Home, Orange	1492	....
79249	Winter Park†, Orange	1491	....
79279	Woodrow*, Lee..	1545	....
79356	Woods, Liberty.	1838	....
79254	Woodville*, Leon	1788	....
79255	Worthington*, Bradford	1589	....
79256	Wulfert*, Lee...	1596	....
79257	Yalaha†, Lake..	1541	....
79259	Yamato.* Palm Beach	1396	....
79902	(Ybor City†, Ind., Sta. Tampa).....	1593	....
79259	Yelvington*, Saint Johns	1539	....
79260	York*, Marion..	1590	....
79283	Youngstown*, Bay	1838	....
79264	Yulee, Nassau...	1537	....
79265	Zellwood*, Orange	1541	....
78201	Zephyrhills†, Pasco	1592	....
79268	°Zolfo Springs†, Hardee	1544	....

FRANCE.

x9000	U. S. Army Postal Service*.		

GEORGIA.

06002	Abba*, Irwin....	1685	....
06003	Abbeville†, Wilcox	1685	....
06004	Abbottsford*, Troup	1862	....
07721	Aberdeen, Fayette	1832	....
06005	Acree*, Dougherty	1785	....
06006	Acworth†, Cobb.	1839	....
06008	Adairsville†, Bartow	1836	....

Figure 22: Specimen page from Parcel-Post Guide

enter the commercial field: they feared that this entry might be but the opening wedge of socialism. However, the continued efforts of proponents of the idea were finally successful in securing a law which authorized the establishment of parcel-post service beginning with January 1, 1913. The law, as originally passed, gave the Postmaster-General the

Series 1 *By order of the Postmaster General*

Unit Nos.	Zone	Unit Nos.	Zone	Unit Nos.	Zone	Unit Nos.	Zone	Unit Nos.	Zone	Unit Nos.	Zone
00- 012	8	1779-1789	5	2230-2239	5	2565-2570	3	3174-3187	5	4001-4024	5
9- 254	6	1805-	4	2252-	4	2571-2579	4	3188-3196	6	4025-4035	6
255-1029	5	1806-1818	3	2253-2257	3	2580-2589	5	3201-3222	4	4051-4073	5
1062-1064	4	1819-1828	4	2258-2260	2	2601-2604	4	3223-3237	5	4074-4085	6
1065-1080	5	1829-1839	5	2261-2263	1	2605-2619	3	3238-3246	6	4101-4121	5
1112-1117	4	1855-1869	3	2264-2266	2	2620-2629	4	3251-3271	4	4122-4135	6
1118-1131	5	1870-1878	4	2267-2271	3	2630-2639	5	3272-3286	5	4151-4169	5
1162-1169	4	1879-1889	5	2272-2279	4	2651-2654	4	3287-3296	6	4170-4186	6
1170-1181	5	1905-1919	3	2280-2291	5	2655-2669	3	3301-	5	4201-4217	5
1212-1220	4	1920-1929	4	2302-	4	2670-2678	4	3302-3320	4	4218-4254	6
1221-1231	5	1930-1939	5	2303-2307	3	2679-2689	5	3321-3336	5	4255-4263	5
1262-1271	4	1955-1959	3	2308-2310	2	2701-2705	4	3337-3341	6	4264-4435	6
1272-1283	5	1960-1964	2	2311-2313	1	2706-2718	3	3351-3352	5	4436	7
1314-1322	4	1965-1970	3	2314-2316	2	2719-2728	4	3353-3369	4	4451-4484	6
1323-1333	5	1971-1979	4	2317-2321	3	2729-2739	5	3370-3385	5	4485-4486	7
1364-1373	4	1980-1988	5	2322-2329	4	2751-2756	4	3386-3392	6	4501-4533	6
1374-1384	5	2005-2008	3	2330-2340	5	2757-2767	3	3401-3404	5	4534-4550	7
1393-1398	6	2010-2015	2	2352-	4	2768-2778	4	3405-3417	4	4551-4582	6
1415-1424	4	2016-2020	3	2353-2357	3	2779-2789	5	3418-3435	5	4583-4585	7
1425-1435	5	2021-2029	4	2358-2366	2	2800-2807	4	3436-3441	6	4601-4631	6
1440-1449	6	2030-2038	5	2367-2371	3	2808-2816	3	3451-3457	5	4632-4635	7
1465-1475	4	2055-2057	3	2372-2379	4	2817-2827	4	3458-3464	4	4651-4679	6
1476-1488	5	2058-2065	2	2380-2390	5	2828-2840	5	3465-3484	5	4680-4685	7
1489-1499	6	2066-2070	3	2402-	4	2850-2859	4	3485-3490	6	4701-4728	6
1515-1525	4	2071-2079	4	2403-2407	3	2860-2864	3	3501-3534	5	4729-4734	7
1526-1539	5	2080-2088	5	2408-2416	2	2865-2877	4	3535-3539	6	4751-4776	6
1540-1549	6	2104-2107	3	2417-2421	3	2878-2890	5	3551-3583	5	4777-4784	7
1562-1576	4	2108-2116	2	2422-2429	4	2891-	6	3584-3589	6	4801-4825	6
1577-1589	5	2117-2121	3	2430-2440	5	2901-2927	4	3601-3632	5	4826-4834	7
1590-1599	6	2122-2129	4	2452-2453	4	2928-2939	5	3633-3640	6	4851-4873	6
1610-1627	4	2130-2138	5	2454-2457	3	2940-2941	6	3651-3681	5	4874-4883	7
1628-1639	5	2152-	4	2458-2465	2	2951-2976	4	3682-3691	6	4901-4921	6
1640-1649	6	2154-2157	3	2466-2470	3	2977-2989	5	3701-3731	5	4922-4933	7
1657-1659	4	2158-2166	2	2471-2479	4	2990-2992	6	3732-3740	6	4951-4969	6
1660-1664	3	2167-2171	3	2480-2490	5	3001-3025	4	3751-3780	5	4970-4983	7
1665-1677	4	2172-2179	4	2502-2503	4	3026-3039	5	3781-3790	6	5001-5016	6
1678-1690	5	2180-2188	5	2504-2508	3	3040-3043	6	3801-3829	5	5017-5033	7
1706-1707	4	2202-	4	2509-2515	2	3051-3075	4	3830-3889	6	5051-5063	6
1708-1716	3	2203-2207	3	2516-2520	3	3076-3088	5	3851-3878	5	5064-5813	7
1717-1727	4	2208-2210	2	2521-2529	4	3089-3097	6	3879-3887	6		
1728-1739	5	2211-2213	1	2530-2540	5	3101-3124	4	3901-3927	5		
1755-1756	4	2214-2216	2	2552-2553	4	3125-3138	5	3928-3937	6		
1757-1767	3	2217-2221	3	2554-2559	3	3139-3147	6	3951-3976	5		
1768-1778	4	2222-2229	4	2560-2564	2	3151-3173	4	3977-3986	6		

THE FOLLOWING ARE WHOLLY WITHIN THE INDICATED ZONE:

California, 7	District of Columbia, 5	Massachusetts, 5	Rhode Island, 5	Vermont, 5
Connecticut, 5	Kentucky, 4	New Hampshire, 5	South Carolina, 5	Virgin Islands, 8
Delaware, 5	Louisiana, 5	New Jersey, 5	Utah, 6	

THE FOLLOWING SHALL BE CONSIDERED AS OF THE 8TH ZONE:

Alaska	Cuba	Mexico	Republic of Panama
Canada	Guam	Philippine Is.	Samoan Is.
Canal Zone	Hawaiian Is.	Porto Rico	

Figure 23: Official zone key to parcel-post guide for unit Number 2,262 (Madison, Wisconsin)

power to restate from time to time, with the approval of the Interstate Commerce Commission, classifications, weight limits, rates, zones, or other factors, in order to promote maximum public service. Under this provision many changes have been made, particularly with respect to the weight limit, to rates, and to special features such as insurance and c.o.d., with a view to improving the service.

DETERMINATION OF PARCEL-POST RATES

Perhaps the most interesting and certainly the most stable feature of the law is the system of rate-making prescribed. Under the law, zones were established, the zone location of any point being determined by the direct distance of that point from the point of shipment. These zones are numbered from 1 to 8, the maximum radius of each being 50, 150, 300, 600, 1,000, 1,400, 1,800, and over 1,800 miles, respectively, a local zone also being recognized covering movements through a single office. To more quickly determine the zone location of the point of destination and hence facilitate the determination of the rate, the United States has been divided into a series of squares 30′ each way. To the northernmost tier, moving westward, have been given the numbers 0, 50, 100, 150, 200, 250, and so forth, and successive squares south of these have been numbered 1, 2, 3, and so forth; 51, 52, 53, and so forth; 101, 102, 103, and so forth. All post-offices are supplied with a parcel-post guide which gives the block or unit location of each post-office. In addition, all offices are furnished a "zone key," this key being different for each office throughout the United States. Having determined the block number of the office of destination, it is but a moment's work to ascertain from the key the zones in which it is situated. These keys, different for each office, are constructed from maps upon which, with that particular office as the center, concentric zones have been drawn. All squares lying wholly within a concentric circle, as well as those which lie partially within and partially beyond that circle, take the

rate applicable to that zone. Copies of both the guide and particular unit number keys may be obtained through the Superintendent of Documents, Washington, and many who use the parcel-post service thus equip themselves that they may have rate information immediately available. A specimen page from the 1923 directory and a zone key appear on preceding pages. Charges assessed for the movement of parcel-post material vary from 5 cents for one pound to 40 cents for 70 pounds locally, and from 12 cents for one to $6 for 50 pounds to zone eight.

REGULATIONS AND PRIVILEGES

In accordance with the regulations now governing, domestic parcel-post mail includes merchandise, farm and factory products, seeds, bulbs and plants, books and miscellaneous printed matter weighing more than 4 pounds, together with all other items not specifically included in the other classes. Parcel-post packages are limited both as to size and weight, the combined length and girth of a package being limited to 84 inches as compared with 72 inches when the Act first went into force, and to 50 pounds in weight for all distances as compared with the limitations of 11 pounds in the beginning, though a weight of 70 pounds may move by parcel-post within a 300-mile radius. Careful wrapping of all parcels is prescribed and liquids, fragile articles, and perishables are received subject only to detailed requirements. When desired, the sender of any parcel by post may secure a simple receipt for the same upon payment of one cent at the office to which delivered.

Two privileges of particular interest are accorded by the government in connection with the parcel-post service. The first of these is that of insurance. This covers all except a few specified types of parcels and protects against loss, rifling, and damage, the fee charged varying from 3 cents for an actual value not exceeding $5 to 25 cents for articles with an actual value not in excess of $100. If loss

or damage is suffered and the shipment was packed and indorsed in accordance with postal requirements, recovery may be had for the actual value of the article lost within the limits set by the insurance placed upon it, or for "the actual, usual, direct, and necessary cost of repairing partially damaged articles." All claims for indemnity, if recovery is to be had, must be filed within six months of the date of mailing. A second interesting privilege offered is that of collection upon delivery. Parcel-post matter, again excepting certain articles, may be sent c.o.d. from any domestic money-order post-office or United States naval vessel to another office or vessel having money-order service, upon the payment of a fee of 10 cents in addition to the postage when the amount to be remitted does not exceed $50 and 25 cents additional when the amount does not exceed $100. Remittance is made by post-office money-order, the addressee paying the order fee. This c.o.d. fee protects against loss and damage and against non-receipt of returns. Goods shipped c.o.d. are not subject to examination prior to delivery and indemnity for lost c.o.d. parcels is paid under the same conditions which govern for lost insured parcels.

VOLUME AND FINANCIAL RESULTS

Although statistics showing the total volume of the parcel-post business are not available, a record was made of the movement during the period from October 1 to October 15, 1920, at all first- and second-class post-offices and at a representative number of third- and fourth-class offices. The results of this investigation are indicated by the following statement from the 1921 report of the Postmaster-General:

> The reports from the 50 largest post-offices, which represent approximately 57% of the gross postal receipts for all offices, show that 41,524,990 parcels were mailed at these offices during the period. . . . The total weight for the period of the parcels mailed at these offices was 105,898,298 pounds, or an average weight of 2 pounds 9 ounces. The total number of

parcels mailed during the statistical period for all first- and second-class offices was 51,372,038 . . . . with a total weight of 148,105,390 pounds, an average per parcel of 2 pounds 14 ounces.

Addition to these figures of the movements from third- and fourth-class offices and multiplication by 24 to approximate the entire year, makes it clear that the parcel-post is tremendously significant as an agency for the transportation of goods of various types which formerly moved by express or by freight. This service has been rendered by the government at low rates, though, in the annual report of the Postmaster-General for 1920, it was estimated that it yielded a profit of $10,000,000 for the fiscal year ending June 30, 1920. These figures were based, however, upon pre-war calculations and in 1921 a new Postmaster-General stated definitely that, in his opinion, the parcel-post system by no means pays for itself. He recommended, therefore, an increase in postage rates, based upon an accurate determination of costs, holding that, as a commercial proposition, the service should be self-supporting. Arrangements to this end were made and the Department has undertaken, with the aid of experts from the Interstate Commerce Commission, a careful investigation to the end of ascertaining costs and revising rates.

PROBLEM OF RAILWAY MAIL PAY

One of the most difficult and important problems incident to the relationship between the railways and the government in the handling of mail has been the determination of a proper basis of payment to the carrier. In its demands upon the railways the government has always been most exacting as indeed it might properly be with respect to a service of such fundamental social and economic importance. Not only does the Post-Office Department have power to designate any train as a mail train and to demand that all mail trains be given the right of way over other trains, but it may also go much further: it can demand such

types of equipment as it desires, designate routes over which mail shall move, control the construction of cars and their placing at terminals, and require the carrier to load and unload mail at stations and terminals. In fact, it has exacted the performance of many other services and compelled the acceptance of many other responsibilities, including, until very recently, such extra services as the transportation of mail to and from numerous post-offices. Under the law of 1873, which first gave expression in a definite manner to various practices and principles of compensation which had developed through an evolutionary process, compensation was paid essentially upon the basis of the average daily weight carried on each route, with an additional allowance for full railway post-office cars of 40 feet or more in length. It is interesting to note that this Act, which governed, with minor modifications, for many years, permitted the Postmaster-General to fix the compensation for the service rendered.

In the relationship thus established there were three noteworthy features, all of which gave rise to more or less dissatisfaction on the part of railway or government. The first of these and perhaps the least important was the situation of the land-grant road which was compelled to render service at 80% of the sum paid others for a similar service. Yet, whatever hardship this may have worked upon individual roads, no sound basis for complaint upon the ground of unfairness existed in view of the benefits received in the past by such carriers through federal aid; indeed, the terms of the grants provided for service to the government at less than commercial rates. The absence of mutual consent in the determination of the rates to be paid for mail service gave rise to the second problem. Certain services, many of which went beyond the mere transportation of the mails, were demanded of the carrier and compensation was fixed by the head of the department which was the beneficiary of the service. Regardless of how fair the Postmaster-General might attempt to be in the determination of rates, there

was always the temptation to reduce the oft-recurring postal deficit at the expense of the railways. The third problem was that of obtaining the average daily weight of the mail movement, upon the basis of which payments were made. The determination of this figure represented a constant expense to the government, since the quadrennial weighing was in progress each year in one of the four districts into which the United States was divided. It also gave opportunity for fraudulent practice, both on the part of those interested in increasing the volume of mail during the 90-day weighing period in particular sections and those interested in depleting it in so far as that was possible.

PRESENT BASIS OF COMPENSATION

Largely as a result of the method of determining the compensation for service rendered, sharp disagreement existed for many years between the Post-Office Department and the railways, the one seeking to justify a reduction in the rate of mail pay, the other alleging gross underpayment. Numerous congressional committees investigated the problem and, with but one exception, recommended a complete change in the basis of payment. After 43 years of struggle between the railways and the Post-Office Department, Congress placed upon the statute books, in 1916, over the protest of the railways, a law which authorized a change in the basis of payment from weight of mail transported to car space requisitioned.

The advantages of this latter system are several. The government pays and the railways receive payment for neither a greater nor a lesser service than is rendered, and the cost and inconvenience of quadrennial weighing, with its temptation to pad or deplete the mails, are eliminated. It is further urged that the new plan encourages efficiency on the part of the Post-Office Department in the utilization of space; that, with the rapid development of the parcel-post, a space system is fairer to the railways than a system based

upon quadrennial weighing; and that the plan is so clear and definite that any citizen can readily understand it. Finally, it is asserted that, after all, the weight of the mail transported is relatively unimportant as compared with the space occupied in all except heavily loaded storage cars, because of the dead weight of the car or portion of the car utilized.

This law also took from the Postmaster-General the power to fix compensation, placing it in the hands of the Interstate Commerce Commission. Under its terms appeal was early made to the Commission for an official determination of the rates to govern the performance of the various services, the railways protesting against the rates tentatively fixed by the Postmaster-General. After a careful investigation of the matter the Interstate Commerce Commission, in its decision of December 23, 1919, approved the wide application of space principle made by the Postmaster-General under the permissive feature of the Act and ordered its application extended to cover all railway mail routes. This decision also prescribed a scale of rates for each mile of service by various types of equipment for the period November 1, 1916, to January 1, 1918, as follows:

	(Cents)		(Cents)
A 60-foot R. P. O. car...	.27	A 15-foot closed-pouch space	.10
A 30-foot apartment car..	.15	A 7-foot closed-pouch space	.05
A 15-foot apartment car..	.10	A 3-foot closed-pouch space	.03
A 60-foot storage car.....	.28		
A 30-foot storage space...	.15		
A 15-foot storage space...	.08		
A 7-foot storage space...	.04½	A 3-foot storage space...	.02½

Additional allowances of 20% were to be made to railways not longer than 100 miles and not less than 50 miles in length and 50% additional to those less than 50 miles in length. It also provided that the 80% figure for land-grant roads should be continued and that, after January 1, 1918, the general scale of rates should be increased 25%. Definite rules were laid down to govern the requisitioning of

space and it was provided that all side, terminal, and transfer service should be performed for the government under separate agreement by the carriers or by others, and that for such service a separate compensation should be paid. As a basis of rate adjustment, it is made the duty of the Postmaster-General to conduct tests at least once in two years, with the assistance of the railways, to determine the number of sacks and outside packages that will fill a foot or three-foot space of a car. These results are to serve as the basis for any necessary changes in rules governing the count of sacks and packages. After the 1919 decision no important changes were made in either rules or rates until the increase in compensation to the New England lines ordered early in 1924; that increase will augment mail revenue about 35%, it is estimated, for the roads benefited. The original decision and later changes have been accepted by the railways with relatively good grace and, under a postal administration which has not been antagonistic to the carriers but, instead, willing to pay a fair compensation, it seems that "the ghost has been laid" in the railway mail controversy. However, this settlement has been reached only after many years of acrimonious discussion, fruitless debate, and more or less bootless investigation.

The Express Service

The second important incidental service rendered by the railways is that concerned with the handling of express shipments. This service, although essentially freight in character, normally handles a certain few types of commodities and shipments. Important among them are perishables, small packages of high value, various articles forwarded in response to "rush" orders, and valuables such as bullion, currency, jewels, and securities of different sorts. In general, this service is rendered throughout the world by the railway itself. In the United States, however, the express, or "special fast freight," service has been and is rendered

by a separate organization. This was due initially to the early entry of individuals into the field and has persisted primarily because the railways were thus able to relieve themselves of certain obligations and often, at the same time, to obtain an even greater profit from the business at the high rates charged by the separate companies than they could have secured through conducting the business themselves. Despite the fact that this service is independent of the railway, there is no real competition between the railway and the express company because the railway's profits are greater if goods move by express and because, by agreement, the express rate must at all times be a multiple of the freight rate, this multiple being rarely less than two, often more.

BRIEF HISTORY OF THE EXPRESS BUSINESS

The origin of the express business in the United States dates back to 1839 when one William Harnden established a route between New York and Boston. He was soon followed by Alvin Adams and these two companies in 1854 became the Adams Express Company. The American Express Company was established in 1850 and represented a consolidation, as did the Adams, of several smaller organizations. Wells Fargo and Company, the third important entrant, was established in 1852, its field being essentially the California business, packages and other items being transported with regularity across that great stretch of territory lying between the Missouri River and the Pacific Coast where danger from Indians and outlaws was always great. The fourth major company to enter the field was the United States Express Company, also organized in 1854. In 1886 the Southern Express Company was organized as a subsidiary of existing companies to handle the southern business. Other smaller concerns have entered the field from time to time, most of these operating, however, over but a single line and existing because of disagreement be-

tween that particular railway and one of the existing companies.

The five major companies operated in rather definite sections of the country and even when territories overlapped no competition was in evidence. The Wells Fargo organization served primarily in the West and Southwest and the Southern wholly in Southern territory. The United States served along the eastern coast, centering about New York and Philadelphia, while the Adams and the American companies operated mainly in the eastern and north-central portions of the United States. The control which these four corporations exercised over the express business of the United States—the United States Express Company was dissolved shortly after the establishment of the parcel-post—is indicated by the fact that in 1917 they operated over about 92% of the railway mileage of the country and controlled approximately 95% of the business.

In 1918 the four great express companies of the United States consolidated and the American Railway Express Company was organized to control, during the period of the war, all express business formerly handled by them. The stock of the resultant corporation was taken by the four parent concerns, thus forming an inverted holding company. This company took over the contracts, organization, and physical properties of its predecessors, though certain financial functions, such as the issuance of money-orders and letters of credit are still performed by at least one of the parent corporations, and the handling of foreign shipments has been retained by them, the American Express Company playing the major role here. So satisfactory was the conduct of the express business by the one corporation that the Interstate Commerce Commission, acting under the authority of the Transportation Act of 1920, later held the consolidation to be in public interest and hence legalized its continuance. The American Railway Express Company has, therefore, become a permanent feature and now controls the entire express business of the United States with

the exception of operations over the lines of the Southern Railway and its subsidiary properties. As the result of a disagreement between the express company and the railway company, the Southeastern Express Company operates over Southern lines.

ORGANIZATION AND ADMINISTRATION

The internal organization of the American Railway Express Company is simple. In addition to a staff of major officers such as is characteristic of any large organization, including the heads of the treasury and accounting departments, there is, for each of several large areas, a regional vice-president with a general manager and general superintendents subordinate to him. Reporting to each of these general superintendents are division superintendents, and to them, in turn, are responsible the local agents. Certain of these agents are employed on a full-time basis, though others, situated in smaller places and performing but a part-time service, are paid on the basis of their cash collections, the usual allowance being 10%.

Four papers are employed in the handling of express traffic. The first of these is the receipt issued to the shipper upon delivery of the goods to the express company. This document corresponds to the bill of lading in the case of freight shipments. This receipt contains certain essential data, such as the name of the consignor, name and address of the consignee, a description of the goods, their declared value, the charges covering, and a statement of the terms and conditions of the contract between shipper and company. This receipt is signed by the consignor and the company agent and is non-negotiable. The second paper issued is the label, which is attached to all shipments except those of money. Prepaid shipments have attached to them yellow labels, "collect" white, and c.o.d. green, these various colored labels being employed to distinguish the more clearly among the three types of shipments named

and thus to avoid double collection of charges or failure to collect on c.o.d. movements. For its own purposes, the express company issues a way-bill for each shipment, a copy of which accompanies the shipment, serving in that connection the same function as the freight way-bill. The way-bill contains essentially the same information as the receipt, together with such shipping instructions as may be necessary. All movements of express shipments are under the control of a messenger in the employ of that company and at destination they are turned over to the local agent who delivers the consignment to the party addressed. Upon delivery the consignee must sign in the delivery book, indicating the receipt of the shipment. Such losses and damages as may occur impose upon the express company the same character of liability which attaches to the railway itself and all claims growing out of such losses or injuries are paid by the express company.

THE OLD CONTRACT BETWEEN RAILWAY AND EXPRESS COMPANY

Prior to the organization of the American Railway Express Company individual contracts were made between the various express companies and the individual railways over which each operated. These contracts were essentially uniform in all but one particular, the percentage of gross operating revenue payable to the railway as compensation for services rendered. In this typical contract, the railway agreed to furnish all necessary equipment for the transportation of express shipments and to haul the same in conjunction with the movement of passenger or mail traffic or by special train; to provide terminal space for the handling of such traffic, and to furnish free transportation for company material, and for all officers and employees moving in pursuit of duty. The express company, in return, agreed to pay a reasonable compensation for all separate facilities used or constructed for its use, to transport free of charge

all moneys and packages moving in behalf of the railway, to assume all risk of loss or damage to goods or persons, and to pay to the railway a certain percentage of the annual gross operating revenue. This percentage varied rather widely, however, and was determined primarily by the bargaining power of the carrier in question. The figure ran close to 60% for the stronger roads, and as low as 40% upon those which were, because of financial situation or low density of traffic, in a poor position to render the service themselves and, in consequence, had slight bargaining power.

THE NEW RAILWAY-EXPRESS AGREEMENT

During the period of federal operation of railways and prior to the assumption of the express business by the government, the American Railway Express Company executed a single contract with the Director-General of Railroads. Following the termination of federal operation of both the railway and the express business on March 1, 1920, it became necessary to work out a new contract to govern the relationship between them. This contract, as worked out and approved by the Interstate Commerce Commission, calls for an agreement between the express company and the roads serving each of the districts designated by the Commission—under the original order the Eastern, Southern, Western, and Mountain-Pacific, but now only three because of the consolidation of the two last named. The contract is thus made with the roads of each group as a whole. Under the form of contract adopted, the first problem is that of ascertaining the "income for division." To obtain this figure it is necessary to determine accurately gross and net operating revenue. In gross operating revenue are to be included all express transportation receipts, the rent of buildings and other property, car mileage and *per diem* income, together with the net income from so-called miscellaneous physical properties. Specifically excluded from gross income, however, are such non-carrier revenues as

brokerage fees and revenues from c.o.d., money-order, and other financial operations. To arrive at the net figure desired, there is deducted from gross revenue the sum of all operating expenses, which include depreciation and other like charges, compensation to any railways served by the express company but not parties to this agreement, uncollectible transportation revenue, taxes attributable to transportation, rent for real property used jointly, and rent for rolling stock equipment not otherwise provided for. Deductible also are interest and discount on funds expended to provide additional property and equipment necessary for the express business at a rate not to exceed 6% per annum, with the provision that so long as this money remains unpaid it is not to be considered a part of the average value of the capital employed in the express business.

DISPOSITION OF "NET INCOME FOR DIVISION"

The sum remaining after proper expense deductions have been made from gross operating revenue represents net operating revenue and is termed "income for division." After the deduction of 2½% of that sum for express company purposes the balance remaining, designated "net income for division," is divided among the railroads in the group in the proportion that gross express transportation revenue for the month earned on the line of each railroad bears to the gross transportation revenue earned on all lines in that group for the particular month in question. If the 2½% of the income for division retained by the express company exceeds in amount 6% of the value of the entire real property, equipment, and capital employed by the express company in the transaction of its business, such excess shall be termed "profit" and divided one-half to the railways, to be distributed upon a prescribed basis, and one-half to the express company. The excess assignable to the latter is to be accumulated until it amounts to 10% of the value of the entire property owned by the company

and devoted to the express business, after which time all "profit" shall be divided one-fourth to the express company and three-fourths to the railways.

DEMAND FOR REGULATION

Prior to 1906 no basis for the regulation of interstate express business existed. By that time, however, high rates, unreasonable discrimination, arbitrary treatment of patrons, and other abuses of power had engendered such sharp public hostility as to cause express companies to be subjected to the same degree of control as were the railways. In compliance with the requirements of the law, tariffs were filed with the Interstate Commerce Commission, but they proved to be of a highly objectionable character. As a result of many complaints lodged with that body alleging exorbitant and discriminatory rates, protesting against certain irritating and unreasonable practices such as double collection and delays in the settlement of claims, and declaring that rate schedules were so complex as to be incomprehensible to the shipping public, the Interstate Commerce Commission made an extensive study of the problem. Upon the basis of that study the Commission prescribed not only a system of rate-making but also a schedule of rates and, though the latter has been changed from time to time, the former still governs essentially as it was laid down by that body in 1913.

THE NEW CLASSIFICATION

The first problem to which the Interstate Commerce Commission addressed itself in the effort to straighten the express tangle was that of the reclassification of commodities. Under the order finally issued it was provided that all commodities should be charged the first-class rate except food products and beverages, which were given a second-class rating, certain specified items listed as third-class, valuables moving subject to the money classification, and

ILLINOIS

R. R. and Div. No.	Office	Block No. and Sub-Bl. Letter	Group Letter	District Bureau No.	Supts. Div. No.	Scale No.	R. R. and Div. No.	Office	Block No. and Sub-Bl. Letter	Group Letter	District Bureau No.	Supts. Div. No.	Scale No.
102 1	Cayuga	937 B	E	051	45	....	111 1	Chicago (d)	838 B	E	051	56	....
102 4	Casenovia	936 C	E	051	45	.....	117 1	(Continued)		W			
117 6	Cedar Point	836 M	W	051	46	.....	117 3			W			
992	Central States Fair Grounds and Exposition Grounds (N.O.)	837 C	W	051	46	.....	120 1			W			
							243 1			E			
							312 1			E			
109 67	Centralia(d)ARE.SE.	1136 H	W	051	45	.....	322 12			W			
243 5	(B.P.)		E				372 1			E			
683 1			E				373			E			
555 1	Cerro Gordo	1037 B	E	059	42	.....	410 91			E			
109 68	Chadwick	736 N	W	051	46	.....	410 160			E			
243 1	Champaign (d)	937 Q	E	051	45	.....	414 1			E			
412							555 8			E			
555 6							555 10			E			
906							610 1			W			
109 68	Chana	836 D	W	051	46	.....	951			E			
118 2	Chandlerville	935 Q	E	059	42	.....	902			W			
109 62	Chapin	1035 C	W	059	42	.....	103 1	Chicago Heights (d)	838 K	E	059	42	.....
555 1	(B.P.)		E				555 10	Chicago Ridge	838 E	E	059	42	.....
529	Chapman	1036 P	E	059	39	.....	27 1	Chillicothe (d)	936 C	W	051	45	.....
127 1	Charleston (d)	1037 H	E	059	39	....	120 2						
529							123 1	Chrisman	1038 B	E	059	39	.....
243 8	Charlotte	937 C	E	051	45	.....	127 14						
610 1	Charter Grove	737 O	W	051	45	.....	109 67	Christopher (d)	1236 D	W	010	64	.....
102 8	Chatham	1036 F	E	051	45	.....	243 15	(B.P.)		E			
243 8	Chatsworth	937 C	E	051	45	.....	109 1	Cicero (d)	838 B	W	051	46	.....
528							610 1						
603 2	Chatton	934 Q	W	059	42	.....	243 9	Cisco	937 O	E	051	45	.....
118 3	Chautauqua (Sn)	1135 C	E	059	42	.....	38 44	Cisne	1137 G	E	059	42	.....
243 1	Chebanse	838 N	E	051	45	.....	103 6	Cisna Park	938 E	E	059	42	.....
107 16	Chemung	737 K	W	060	49	.....	110 1	Clare	737 N	W	051	46	.....
270 1	Cheneyville	938 K	E	059	39	....	38 12	Claremont	1138 E	E	052	40	.....
102 1	Chenoa (d)	937 B	E	051	45	.....	270 1	Clarence	938 I	E	059	39	.....
528							109 1	Clarendon Hills	838 A	W	051	46	.....
117 6	Cherry	836 M	W	051	46	....	103 10	Clarksburg	1037 I	E	059	42	.....
117 74							555 7	Clarksdale	1036 L	E	059	42	.....
107 17	Cherry Valley	737 N	W	051	46	.....	38 12	Clay City	1137 G	E	052	40	.....
243 2	Chestnut	936 Q	E	051	45	.....	603 2	Clayton (d)	935 N	W	059	42	.....
133	Chester(d)	1236 A	W	010	64	....	603 8						
332 66	(B.P.)		W				103 6	Claytonville	938 E	E	059	42	.....
554			E				102 11	Clements	1035 H	E	051	45	.....
683 2			E				243 1	Clifton, Iroquois Co.	938 A	E	051	45	.....
118 1	Chesterfield	1035 M	E	059	42	.....	243 2	Clinton (d)	937 N	E	051	45	.....
410 170	Chesterville	1037 G	E	059	42	.....	243 5						
27 1	Chicago (d)	838 B	W	051	56	.....	243 7						
38 1	(B.P.)		E				610 1	Cloverdale	837 D	W	051	45	.....
39 1			E				109 1	Clyde, Cook Co	838 A	W	051	46	.....
97 1			E				27 1	Coal City	837 L	W	051	46	.....
102 1			E				120 2	Coal Valley	835 L	W	051	46	.....
103 1			E				109 10	Coatsburg	934 Q	W	051	46	.....
104 1			E				243 1	Cobden	1236 G	E	010	64	.....
107 3			W				529	Coffeen	1036 P	E	059	39	.....
107 17			W				109 10	Colchester	935 I	W	051	46	.....
107 89			W				243 9	Coles	1037 G	E	051	45	.....
108			E				243 4	Colfax	937 F	E	051	45	.....
109 1	(Continued in next		W				410 1	Collinsville (d)	1136 E	E	059	39	.....
110 1	column)		W				103 8	Collison	938 N	E	059	42	.....

Figure 24: Specimen page from Express Directory

RATE TABLE 1. BLOCK 636.

MAIN BLOCK TARIFF.

100		200		300		400		500		600		700		800		900	
Block	Scale	Block	Scale	Block	Scale	Block	Scale	Block	Scale	Block	Scale	Block	Scale	Block	Scale	Block	Scale
*101		201	174	301	174	402	169	501	174	601	188	*701		801	212	901	208
*102		*202		302	166	403	166	502	171	602	174	702	182	*802		902	212
103	162	203	160	303	162	404	162	503	168	603	174	703	185	803	186	903	183
104	166	204	155	*304		405	160	504	168	*604		704	191	804	188	*904	
*105		205	152	305	151	406	158	*505		*605		705	174	805	169	905	168
106	154	206	151	306	149	407	151	*506		*606		*706		*806		906	158
107	151	207	145	307	145	408	158	507	163	607	161	*707		*807		907	153
108	149	208	142	308	145	409	150	508	159	608	154	*708		808	150	908	150
109	137	209	139	309	145	*410		509	153	609	148	*709		*809		909	148
110	129	210	130	*310		*411		*510		610	144	710	142	810	138	910	142
111	122	211	126	311	126	412	129	*511		611	142	711	138	811	133	911	136
112	116	*212		312	116	413	115	512	126	612	136	712	132	812	129	912	133
113	108	213	115	313	112	414	105	513	121	613	128	713	127	813	124	913	128
114	106	214	110	314	103	415	101	514	139	614	133	714	119	814	119	914	124
115	99	215	105	315	98	416	97	*515		*615		715	115	815	110	*915	
116	97	216	102	316	93	417	92	516	98	*616		*716		816	106	*916	
117	92	217	106	317	89	418	92	517	98	617	87	717	92	817	96	*917	
118	83	*218		318	84	*419		518	91	618	87	*718		818	92	918	97
119	82	*219		319	80	*420		519	84	619	81	719	81	819	87	919	92
120	76	*220		320	76	*421		520	82	*620		720	76	820	83	920	84
121	75	221	72	321	72	*422		521	78	621	72	721	70	821	74	921	74
122	68	222	77	322	67	423	62	522	62	622	65	722	66	822	68	922	69
123	65	223	66	323	62	424	55	523	59	623	59	723	63	823	67	923	65
124	62	224	66	324	62	425	52	524	56	624	55	724	59	824	62	924	61
125	59	225	59	325	59	426	52	525	52	625	48	725	55	825	60	925	56
126	57	226	56	326	56	427	52	526	50	626	45	726	50	826	54	926	53
127	56	227	56	327	52	428	45	527	48	627	41	727	46	827	50	927	50
128	56	228	52	328	48	429	44	528	41	628	41	728	43	828	46	928	47
129	52	229	48	329	44	430	37	529	37	629	33	729	37	829	43	929	44
130	56	230	48	330	41	431	32	530	37	630	29	730	35	830	38	930	40
131	52	231	44	331	37	432	32	531	32	631	27	731	31	831	32	931	32
132	50	232	41	332	37	433	23	532	26	632	22	732	27	832	28	932	30
133	46	233	41	333	28	434	19	533	17	633	19	733	23	833	23	933	26
*134		234	37	334	28	435	19	534	11	634	11	734	15	834	17	934	18
*135		*235		335	23	436	19	535	Sub	635	Sub	735	Sub	835	16	935	18
*136		*236		336	24	437	19	536	Sub	636	Sub	736	Sub	836	16	936	18
*137		237	32	337	32	438	20	537	Sub	637	Sub	737	Sub	837	16	937	18
*138		*238		338	32	439	32	538	12	638	11	738	11	838	16	938	18
*139		*239		339	32	440	32	539	24	639	17	739	18	839	18	939	21
		*240		340	37	441	37	540	28	640	24	740	21	840	21	940	23
		*256		341	41	442	41	541	30	641	28	741	23	841	23	941	25
		257	64	*342		*443		542	32	642	30	742	25	842	25	942	27
		258	64	*355		*454		543	37	643	32	743	27	843	27	943	29
				*356		455	56	549	42	646	35	*744		844	29	944	29
				357	62	456	58	550	43	647	35	745	33	845	31	945	33
				358	62	457	58	551	46	648	38	746	33	846	35	946	35
						458	62	552	46	649	40	747	35	847	36	947	37
								553	50	650	41	748	36	848	39	948	39
								554	53	651	43	749	38	849	41	949	41
								555	54	652	45	750	41	850	43	950	43
								556	56	653	49	751	43	851	43	951	46
								557	56	654	52	752	45	852	46	952	48
								558	59	655	54	753	48	853	50	953	50
								559	60	656	54	754	50	854	52		
												755	50	855	54		
														856	56		

*No Express Station. "Sub"—See Rate Table 2.

Figure 25: Portion of express rate table

RATE TABLE 2. BLOCK 636.

SUB-BLOCK TARIFF.

To find the scale applicable between two sub-blocks, first ascertain from the Directory of Express Stations the sub-block letter of the originating station and the sub-block number and letter of the destination station. The number of the rate scale sought will be that number which is the intersection of the vertical column of figures beneath the letter of the sub-block of origin and the horizontal line of figures to the right of the number and letter of the sub-block of destination.

To—		From block 636, sub-block—															
Blk	Sub-bl	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q
535	A	11	11	11	11	11	11	11	11	13	13	11	13	13	13	13	13
535	B	8	11	11	11	11	11	11	11	13	11	11	13	13	13	13	13
535	C	8	8	11	11	8	11	11	11	11	11	11	11	13	13	13	13
535	D	8	8	8	11	8	8	11	11	11	11	11	11	13	13	11	13
535	E	8	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
535	F	8	8	11	11	8	11	11	11	11	11	11	11	13	13	13	13
535	G	8	8	8	11	8	8	11	11	11	11	11	11	13	13	11	13
535	H	8	8	8	8	8	8	8	11	11	11	11	11	13	13	11	11
535	I	8	8	11	11	8	11	11	11	11	11	11	11	11	11	11	11
535	K	8	8	8	11	8	8	11	11	11	11	11	11	13	13	11	13
535	L	8	8	8	8	8	8	8	11	11	11	11	11	13	11	11	11
535	M	5	8	8	8	8	8	8	8	8	11	8	11	11	11	11	11
535	N	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
535	O	8	8	11	11	8	8	8	11	8	8	11	11	11	11	11	11
535	P	5	8	8	11	8	8	8	8	8	8	8	11	11	11	11	11
535	Q	4	5	8	8	5	8	8	8	8	8	8	8	11	11	8	11

To—		From block 636, sub-block—															
Blk.	Sub-bl.	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q
635	A	8	8	8	11	8	8	8	11	8	8	11	11	11	11	11	11
635	B	8	8	8	11	8	8	8	8	8	8	8	11	11	11	11	11
635	C	5	8	8	11	5	8	8	8	8	8	8	11	11	8	11	
635	D	4	5	8	11	4	5	8	8	8	8	8	11	8	8	8	
635	E	8	11	11	13	8	8	11	11	8	11	11	11	11	11	11	11
635	F	16	13	13	16	13	13	13	13	13	13	13	13	8	11	11	11
635	G	8	8	8	13	4	8	8	8	5	8	8	11	11	8	8	8
635	H	8	8	11	13	:	8	8	11	4	5	8	11	8	8	8	8
635	I	13	13	13	16	13	13	11	13	11	11	11	13	8	8	8	11
635	K	13	13	13	16	13	13	13	13	13	13	11	13	8	8	11	11
635	L	11	11	11	13	11	11	8	11	11	8	11	11	5	8	8	8
635	M	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
635	N	13	11	11	13	11	11	11	11	11	11	8	11	8	8	8	8
635	O	11	11	11	13	11	11	8	11	11	8	8	11	5	8	8	8
635	P	11	11	11	13	11	8	8	11	11	8	8	11	4	5	8	8
635	Q	11	8	8	11	8	8	8	8	8	5	8	8	3	4	5	8

To—		From block 636, sub-block—															
Blk.	Sub-bl.	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q
536	A	8	8	8	11	8	11	11	11	11	13	11	11	13	13	13	13
536	B	8	11	8	11	11	11	8	11	11	13	11	11	13	13	11	13
536	C	11	11	11	11	11	11	11	11	11	13	11	11	13	13	13	13
536	D	11	11	11	11	11	11	11	11	13	13	11	13	13	13	13	13
536	E	8	8	8	8	8	8	8	8	11	11	8	8	11	11	8	11
536	F	8	8	8	8	8	8	8	8	11	11	8	11	11	11	11	11
536	G	8	11	8	8	11	8	8	8	11	11	8	11	11	11	11	11
536	H	11	11	8	8	11	11	8	11	11	13	11	11	13	11	11	11
536	I	5	8	8	8	8	8	8	8	11	11	8	8	11	11	8	11
536	K	8	5	5	8	8	8	8	8	11	11	8	8	11	8	8	8
536	L	8	8	5	5	8	8	8	8	11	11	8	8	11	11	8	11
536	M	8	11	8	8	11	8	8	8	11	11	3	8	11	11	11	11
536	N	3	4	5	11	8	8	8	8	8	11	8	8	11	8	8	8
536	O	5	4	4	8	8	8	5	8	11	11	8	8	11	8	8	8
536	P	8	8	5	4	11	8	8	8	11	11	8	11	11	11	11	11
536	Q	11	8	8	3	11	11	8	8	13	13	11	11	13	11	11	11

To—		From block 636, sub-block—															
Blk.	Sub-bl.	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q
636	A	3	3	4	8	5	5	5	8	8	8	8	8	8	8	8	8
636	B	3	3	3	8	5	4	4	5	8	8	5	8	8	8	8	8
636	C	4	3	3	8	5	4	3	4	8	8	4	5	8	8	5	8
636	D	8	8	8	3	11	8	8	8	11	11	8	8	11	11	8	8
636	E	5	5	5	11	3	3	4	5	3	4	5	8	8	8	8	8
636	F	5	4	4	8	3	3	3	4	8	8	4	5	8	8	5	8
636	G	5	4	3	8	4	3	3	3	8	8	3	4	8	5	4	5
636	H	8	5	4	8	5	4	3	3	8	8	4	4	8	8	5	8
636	I	8	8	8	11	3	8	8	8	3	3	5	8	8	5	5	8
636	K	8	8	8	11	4	8	8	8	3	3	4	8	5	4	4	5
636	L	8	5	4	8	5	4	3	4	5	4	3	4	5	4	3	4
636	M	8	8	5	8	8	5	4	4	8	8	4	3	8	8	5	5
636	N	8	8	8	11	8	8	8	8	8	5	5	8	3	3	4	5
636	O	8	8	8	11	8	8	5	8	5	4	4	8	3	3	3	4
636	P	8	8	5	8	8	5	4	5	5	4	3	5	4	3	3	3
636	Q	8	8	8	8	8	8	5	8	8	5	4	5	5	4	3	3

Figure 26: Express rate table Number 2

goods covered by commodity tariffs. Other commodities, such as those of high value or large bulk compared with weight, move under a multiple of first-class rates. The second problem was one of segregating the various types of costs borne by the business as a basis for allocating to the individual shipment an amount sufficient to cover each type. Under the new scheme devised the express rate was to consist of three factors, an allowance for collection and delivery or express-terminal cost, an allowance for rail-

terminal cost, and an allowance to cover the haulage or transportation cost. In the matter of the relationship among classes, it was held that second-class shipments should take rates not in excess of 75% of the first-class rate, while the third-class rate, applicable to but very few commodities, was fixed at 1 cent for each 2 ounces or fraction thereof, the minumum charge being 15 cents. However, commodity rates were not to be governed by the terms of this order.

RATES MADE UPON A DISTANCE BASIS

The method of determining express rates was the third major problem which the Interstate Commerce Commission attacked in its general investigation, and the scheme instituted bears on its face a rough likeness to the parcel-post plan, though it differs widely in detail. For the purposes of rate computation the United States was divided into blocks one degree square, these being marked by the intersecting parallels of longitude and latitude. These blocks are numbered from west to east, beginning in the northwest corner of the United States, the numbers in the first tier running 101, 102, 103, and so forth, in the second tier 201, 202, 203, and so forth, in the third tier 301, 302, 303, and so forth, each succeeding tier southward thus forming a higher "hundred series." Each individual block is, in turn, divided into 16 sub-blocks, these being lettered from A to Q, inclusive, omitting the letter J. The United States was also divided into five zones, now three, upon the basis of differences in the nature and density of the traffic.

Under the plan thus devised, the determination of the express class rates upon which the bulk of traffic moves is not a matter of judgment or opinion. In arriving at the main-block first-class rate per hundred pounds the Commission, in a tentative order issued late in 1923, modifying earlier decisions somewhat, has specified that it shall be constructed by combining an express-terminal allowance of 35 cents, a rail-terminal allowance of 30 cents and a haulage factor

which varies with distance. This haulage factor in zone 1, roughly, Eastern territory, is 25 cents for the first block, with a decrease at the rate of .5 cents for each block of travel beyond the originating block for a total of 21 blocks, including the originating block, after which the haulage factor per block of travel remains constant. In zone 2, approximately Southern territory, and in zone 3, approximately Western, the basic haulage factors are 27.5 cents and 30 cents respectively, with the same principle governing the determination of the rate for additional blocks as stated for zone 1. When the points of origin and destination are in different zones the haulage or transportation element of each compounded rate is the sum of the allowances for each zone traversed for the number of blocks of travel in that zone, but based upon the number of blocks in the entire distance. Adjustments from this basis are permitted when necessary to avoid incongruous or anomalous results, the purpose being to produce a symmetrical and equitable rate structure. The basis for the determination of the first-class sub-block rates per hundred pounds has also been prescribed by the Commission, using a scale somewhat higher than for the main-block rates. These rates from the sub-block of origin to the sub-block of destination appear in Table 20.

TABLE 20

EXPRESS RATES GOVERNING SUB-BLOCK MOVEMENTS

	Zone 1 Cents	Zone 2 Cents	Zone 3 Cents
First block of travel:			
First sub-block	90	80	85
Second sub-block	95	85	90
Third sub-block	100	85	90
Fourth sub-block	105	90	95
Second block of travel:			
First sub-block Second sub-block	115	105	110
Third sub-block Fourth sub-block	125	120	125
Third block of travel:			
All sub-blocks	145	145	155

Schedule of First and Second-Class Express Rates in cents.

Pounds.	Scale Numbers. 36		37		38		39		40		41		42		43		44	
	1st Class	2d Class	1st Class	2d Class	1st Class	2d Class	1st Class	2d Class	1st Class	2d Class	1st Class	2d Class	1st Class	2d Class	1st Class	2d Class	1st Class	2d Class
1	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
2	40	40	40	40	40	40	40	40	40	40	42	42	42	42	42	42	42	42
3	43	43	43	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44
4	45	45	45	45	47	47	47	47	47	47	47	47	47	47	48	48	48	48
5	48	47	48	48	50	48	50	50	50	50	50	50	52	50	52	51	52	51
6	52	47	53	48	53	48	53	50	53	50	54	50	54	50	54	51	55	51
7	54	47	55	48	55	48	55	50	57	50	57	50	57	50	58	51	58	51
8	57	47	58	48	58	48	59	50	59	50	59	50	60	50	60	51	62	51
9	59	47	60	48	60	48	62	50	62	50	64	50	64	50	66	51	66	51
10	62	47	64	48	64	48	66	50	66	50	67	50	67	50	68	51	68	51
11	67	50	67	50	68	51	68	51	69	52	69	52	71	53	71	53	72	54
12	69	52	69	52	71	53	71	53	72	54	73	55	73	55	74	56	74	56
13	72	54	72	54	73	55	74	56	74	56	76	57	78	59	78	59	79	59
14	74	56	74	56	76	57	78	59	78	59	79	59	81	61	82	62	82	62
15	78	59	78	59	79	59	81	61	82	62	82	62	83	62	84	63	86	65
16	81	61	82	62	82	62	83	62	84	63	86	65	87	65	87	65	88	66
17	83	62	84	63	86	65	86	65	87	65	88	66	89	67	92	69	93	70
18	86	65	87	65	88	66	89	67	89	67	92	69	93	70	95	71	96	72
19	88	66	89	67	92	69	93	70	95	71	96	72	97	73	98	74	100	75
20	92	69	93	70	95	71	96	72	97	73	98	74	100	75	101	76	102	77
21	95	71	96	72	97	73	98	74	100	75	101	76	102	77	103	77	106	80
22	97	73	98	74	100	75	101	76	102	77	106	80	107	80	108	81	110	83
23	100	75	101	76	102	77	106	80	107	80	108	81	110	83	111	83	112	84
24	102	77	103	77	107	80	108	81	110	83	111	83	112	84	115	86	116	87
25	106	80	107	80	110	83	111	83	112	84	113	85	116	87	117	88	120	90
26	108	81	111	83	112	84	113	85	115	86	117	88	120	90	121	91	123	92
27	111	83	113	85	115	86	116	87	120	90	121	91	122	92	125	94	126	95
28	113	85	116	87	117	88	121	91	122	92	123	92	126	95	127	95	130	98
29	116	87	120	90	121	91	123	92	125	94	127	95	129	97	131	98	134	101
30	120	90	122	92	123	92	126	95	127	95	130	98	131	98	135	101	136	102
31	123	92	125	94	127	95	129	97	131	98	134	101	136	102	137	103	140	105
32	126	95	127	95	130	98	131	98	135	101	137	103	139	104	141	106	142	107
33	129	97	130	98	134	101	136	102	137	103	140	105	142	107	144	108	147	110
34	131	98	134	101	136	102	139	104	140	105	142	107	145	109	149	112	150	113
35	135	101	136	102	139	104	141	106	144	108	145	109	149	112	151	113	154	116
36	137	103	140	105	141	106	144	108	147	110	150	113	152	114	154	116	156	117
37	140	105	142	107	145	109	147	110	150	113	152	114	155	116	158	119	161	121
38	142	107	145	109	149	112	151	113	152	114	155	116	158	119	161	121	164	123
39	145	109	149	112	151	113	154	116	156	117	159	119	163	122	165	124	168	126
40	149	112	151	113	154	116	156	117	159	119	163	122	165	124	168	126	170	128
41	151	113	154	116	156	117	159	119	163	122	165	124	168	126	170	128	173	130
42	154	116	156	117	159	119	163	122	165	124	169	127	171	128	175	131	178	134
43	156	117	159	119	163	122	166	125	169	127	171	128	175	131	178	134	180	135
44	159	119	163	122	166	125	169	127	171	128	175	131	178	134	181	136	184	138
45	163	122	165	124	169	127	171	128	175	131	178	134	181	136	184	138	186	140
46	165	124	169	127	171	128	175	131	178	134	181	136	184	138	186	140	192	144
47	168	126	171	128	175	131	178	134	181	136	184	138	186	140	192	144	194	146
48	170	128	175	131	178	134	181	136	184	138	186	140	192	144	194	146	198	149
49	173	130	178	134	180	135	184	138	186	140	192	144	194	146	198	149	200	150
50	176	132	180	135	183	137	186	140	190	143	194	146	197	148	200	150	204	153

Figure 27: Schedule of express rates

DETERMINATION OF THE CHARGE

To enable him to ascertain the rate applicable from one station to another, the local agent is provided with an *Official Directory of Express Stations* in which is given the block and sub-block location of each station, a block tariff, and the *Local and Joint Schedule of Rates*. The *Block Tariff* gives the number of the schedule or scale of rates applicable between non-adjacent blocks and between sub-blocks of the same or adjacent blocks, the number of this controlling scale increasing with distance. In the schedule are given the entire 294 scales, each of which gives the rates upon first- and second-class shipments varying in weight from 1 to 100 pounds. These rates, however, are based upon a released value of $50 for each 100 pounds or less, and not exceeding 50 cents per pound in excess of 100 pounds. If a greater value is placed upon the shipment an extra charge of 10 cents per $100 or fraction thereof, in excess of the released value, is made. In handling a shipment of unusual value, special care is exercised and receipt for it must be given by each successive employee in whose charge that shipment is placed in the course of its movement, that a complete record may be available.

With such a scheme of rate-making governing, and with the general level of charges determined by the Interstate Commerce Commission, the various grounds of complaint against express rates have been largely eliminated, and arbitrary practices purposed to serve solely the financial interest of the corporation have been effectively controlled. In consequence, few protests are now heard from the public. Within the last decade, through regulation by the Interstate Commerce Commission and through competition from various quarters, the "express monopoly"—against which such violent attacks were directed before commissions and legislative bodies in the years past—has taken its place among the other enforcedly domesticated "servants of the public" in the broad public utility field.

THE FUTURE OF THE EXPRESS BUSINESS

Indeed, in the face of the situation as it exists today, the very continuance of the express business upon the present basis may be doubted. Since its establishment, the parcel-post business has made great inroads upon the business formerly handled by the express companies and, with the gradual increase in size of packages accepted for parcel-post shipment, the offering of adequate insurance and c.o.d. privileges, and the broadening of the field otherwise, the governmentally operated enterprise would seem to promise further growth at the expense of the express traffic. Then, too, on the basis of present rates, the parcel-post offers a cheaper means of transportation than does the express service for small shipments moving relatively short distances, and statistics show that both express and parcel-post business consist largely of such shipments. In districts where rural free delivery exists, the parcel-post system enjoys a further advantage. The primary advantages of the express service lie in the fact that goods are handled somewhat more carefully; that bullion, money and other valuables will be carried under full risk; and that any-quantity shipments, from small packages to carload lots, will be accepted for movement. Also, on heavier shipments moving long distances, express costs are generally less than parcel-post charges. In a certain measure, too, the express service gains through the operation of a package collection service in larger centers.

Just as the parcel-post service has tended to take from the express company in considerable measure the small package business, so has the development of motor-truck transportation tended to take from it heavier shipments moving relatively short distances; in more populous sections of the country the motor truck competes for traffic moving a distance of 100 miles or more. A further development of this type of service, together with better organization for the solicitation and handling of traffic, will un-

doubtedly make further inroads upon the express business. Indeed, in combination with the parcel-post, it threatens to destroy the financial basis of an express service operated as at present. Such a conclusion rests upon the rather unsatisfactory financial results of operation which have marked the history of the express business during recent years, though undue weight should not be given to deficits incurred during the war period, because of the abnormal situation then existing. Perhaps such a conclusion seems to promise the rather too early demise of an organization which owned and employed, in 1920, more than $35,000,000 worth of real property and equipment, and enjoyed gross operating revenues, in 1922, of more than $291,000,000; yet an operating income of $1,110,000 in 1922 and the more recent plea for increased rates, together with the evident competitive tendencies, make the future somewhat dubious for the express business, operated as an independent enterprise.

Indeed, the economic soundness of the arrangement whereby this specialized type of freight service, known as the express business, is handled by a corporation or corporations, separate and apart from the railways as has been the case in the United States, has been held open to serious question by many who have studied the problem carefully. With the development of rival service in the form of parcel-post and truck movement, there would seem to be in prospect a situation which might easily lead to the complete disappearance of a separate organization. The present express business could readily be taken over, in part by existing competitive agencies, and in part by the railways themselves. Definitely to predict such a solution, perhaps, does an injustice to the express company and shows a lack of appreciation of the importance of the functions performed by it, but present conditions certainly point to some marked readjustment in the field of business now occupied jointly by the express company, the parcel-post, and the new rival of both, the motor truck. Such a readjustment will

not be at the expense of the parcel-post service which has been expanding rapidly not only along old lines but also along new, and is unlikely to be at the expense of motor-truck business, which seems to be but in its infancy. In the more than three-quarters of a century during which the express companies have operated, a highly valuable and characteristically efficient service has been rendered the public, but even an old and once valued institution cannot long persist in the face of new conditions which seem to be steadily undermining its economic foundation.

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XVII

RAILWAY ACCOUNTING AND STATISTICS

Organization of the typical accounting department. Work of the expenditures division. Freight revenue records. The passenger division. Work of the car accountant's staff. Freight claims not an accounting problem. Divisional versus centralized accounting for railway accounting. Investment in road and equipment accounts. The classification of operating revenues. The operating expense accounts grouped under eight heads. The income and profit and loss accounts. The general balance sheet. Evaluation of government control of railway accounting. Basis, scope, and further development of railway statistics. Sources of railway data.

An accurate and complete record of the affairs of the railway corporation is important to a degree little appreciated even by many railway executives who have received their training in the operating, traffic, or other active fields of railway endeavor. Not only is it essential that careful records of all business dealings be kept, but it is also of vital importance that a detailed record be maintained of all properties owned by the railway; in no other way can a clear picture be had of the financial status of the corporation at any particular time. To elaborate upon the value of adequate financial and property records to the corporation is surely unnecessary but it is desirable to stress the worth of such records to the investor and to the public. Without access to the information afforded by proper records, the investor or prospective investor has little upon which to base judgment as to the comparative soundness of the corporation's financial situation; with accurate and detailed records available, however, a clear and sound judgment can be formed. To the public, also, proper records are of great value, because the point beyond which the constant public demand for lower rates and better service may not be justly pressed, is fixed largely by the financial

status of the enterprise. The lack of just such authentic records has handicapped American railways since 1910.

ORGANIZATION OF THE ACCOUNTING DEPARTMENT

The accounting department, by which the financial and property records are kept, constitutes a separate organization on all railways and is under the general direction of an official upon different railways known as vice-president, comptroller, or general auditor. Beyond the fact, however, that each road has a separate accounting department, exact similarities cease; departments often differ slightly as to the scope of work and vary widely as to the nature of the internal organization. Nevertheless, though the title and scope of certain major divisions may vary, all such departments handle the property accounts, the records of revenues and expenses incident to freight and passenger operations, and the records of other receipts and disbursements of moneys. To this work is generally added the keeping of records designed to show the movement of equipment and, not infrequently, freight claims also are handled by a special division of the accounting department.

It is in the matter of internal organization that accounting departments differ most widely from road to road. The typical major divisions are expenditures, freight revenues, passenger revenues, and equipment records. But often, because of peculiar conditions or for less obvious reasons, other divisions may be made. Upon roads which have a large coal tonnage there is sometimes found, in addition to a freight revenue division which, in such a case, accounts only for revenues accruing from miscellaneous freights, a coal revenue division dealing entirely with that one commodity. Because of the extent and importance of the work incident to station accounting, certain roads handle this work through a separate division, apart from the freight revenue organization, while yet other roads place all records of the receipt and issuance of materials in the hands of

an independent division. Frequently there is also a miscellaneous accounts division and occasionally all statistical work is concentrated under the direction of a chief statistician instead of being divided among the various departments. However, the organization which may be regarded as typical in the railway accounting field has immediately subordinate to the head of that department four officers, the nature of whose work is indicated in a general way by the title given. These officials are the auditor of expenditures or disbursements, the auditor of freight revenues, the auditor of passenger revenues, and the car accountant. The character of the work performed by each of these divisions will be described briefly in turn.

WORK OF THE EXPENDITURES DIVISION

In this typical department the expenditures office performs a wide variety of tasks. In the first place, a stores section maintains a detailed record of the receipt and issuance of materials by the store-keeping organization. These records not only show total quantities and prices, thereby affording a check against inventory records, but also give minor details such as the cost of specific items, as coal or even signal oil, issued to particular locomotives. A second section in the expenditures office handles pay-rolls. To this section come all the various pay-rolls made up by the many officers charged with that duty, its obligation in this connection being twofold: first, to audit the rolls, and second to distribute the expenditures indicated thereupon by various accounts. This distribution is made by the accounting divisions into which the ordinary railroad is rather minutely divided, and totals are secured for the summary statement of labor costs. The voucher section is responsible for securing the proper signatures upon vouchers issued, for classifying these vouchers by accounts, and maintaining an accurate record of them. The bill section checks all bills issued by other companies against that corporation and

handles the issuance of bills against other corporations to cover sums due from them on commercial transactions. A joint facility section is provided with copies of all contracts between the particular carrier and other carrier corporations and individuals, governing the joint use of properties. Upon the basis of these contracts, bills are issued against others and bills issued by others are checked as to accuracy. In addition to checking and rendering the bills, these last named sections keep a careful record of the date of receipt or issuance of every bill or voucher.

Frequently included within the expenditures division is a section variously named by different roads but dealing with essentially the same problem, capital expenditures records. After estimates have been made by the engineering department for some project, this section makes a careful check of quantities and prices. When the project is completed a comparison of actual with estimated expenditures is made and, if there is a wide divergence between totals or upon single items, inquiries must be made from proper sources concerning the reasons therefor. In the bookkeeping section are brought together various records, and certain matters, such as dining service, pits and quarries, and so forth, are here handled. To the statistical section goes a summary statement of all transactions for the period as reported by other sections, and by it undistributed items are properly "spread" to the various accounts and accounting divisions. By it are also compiled the final statistics showing the cost of operation by accounts for the entire property. All in all, the accounting work done in the expenditures division is more difficult and, if an understanding of the business is to be had, more important than that of other divisions.

FREIGHT REVENUE RECORDS

The auditor of freight revenues heads the largest division within the accounting department. The size of this division is due both to the relative importance of the rail-

way's freight business and to the detailed nature of the records needed. Within this division perhaps the most important section is that which handles station accounts. It is here that each station is debited with all sums properly chargeable to it under the rules which govern, and credited with all moneys remitted as well as with such "reliefs for charges" as may be given upon the basis of peculiar circumstances arising from time to time. The primary function of the way-bill transit section is that of maintaining a check upon the movement of freight by means of "forwarded" and "received" abstracts and the way-bills. To this section is due the automatic tracing of less-than-carload shipments which follows within a certain prescribed period after the shipment has been forwarded, if an "open record" indicates it has failed to reach destination. The inexpertness of many freight agents in quoting tariffs and the possibility of chance errors have led to the establishment of two sections to check the rates applied, the one dealing with local movements, the other with interline. Often, because of the volume of work, it is impossible to check all bills but, in any case, all bills showing a total charge in excess of a specified sum, both local and interline, are examined. Equal emphasis is placed upon the rectification of errors by which the carrier has profited and errors which have resulted in loss to it. The remaining section in the freight revenues office deserving of particular note from the accountant's standpoint is that one which is charged with the compilation of statistical data relative to tonnage and revenues. It is interesting to know that the detailed work incident to the performance of this obligation is being done more extensively each year by improved machines which sort cards previously prepared upon the basis of the way-bills, and compute totals therefrom.

THE PASSENGER REVENUES DIVISION

Because passenger revenues comprise but a small part of the total earnings of the railway, and because the account-

ing necessary to each individual transaction is less than in the handling of freight, the passenger revenues division is smaller and less important to the railway than the one just discussed. In this office revenues from both local and interline sales are distributed by accounting divisions, and upon both types of sales the rates, as charged by the selling agents, are checked for accuracy. All tickets and other evidences of transportation rights turned in by the various conductors are checked against his report and also, upon occasion, against sales as indicated by various local agents. This division, contrary to the practice in the freight field, handles all claims growing out of the purchase and use of tickets, and here are usually maintained records of the issuance of ticket stock to agents, of supplies for dining cars and hotels, and of other incidental matters which arise from time to time in connection with passenger business. In the passenger statistics section, passenger revenue and mileage data are compiled for various property units, accounting and operating, and for the property as a whole.

WORK OF THE CAR ACCOUNTANT'S STAFF

In the office of the car accountant is performed work of a highly detailed and important character. A complete record is maintained of the daily movement of all cars upon the line, these records showing not only where the car is located but also whether it is loaded or empty. Furthermore, from these records are determined the number of home cars delivered to other roads and of foreign cars received by the recording road, together with date and place of such delivery or receipt. Upon the basis of these car records the bills against other roads are made for the use by them of equipment belonging to the "home" line, and the bills submitted by such other roads for the use of "foreign" cars by the home road are checked. In addition to records of carrier-owned equipment, records are here kept of private-car movements and settlement is made with the owners of such

equipment upon the basis of mileage shown. The tracing section also utilizes the car records; its duty is to locate and effect the delivery of "lost" carload shipments.

In the car accountant's office are compiled detailed statistics relative to locomotive performance and car mileage. The mileage of each locomotive and of locomotives as a whole is compiled upon the basis of train service, switching service, work service, and so forth. An accurate record of time in service and in shop undergoing repairs is maintained and ratings are given the various classes of locomotives upon the different divisions in order that a ready record of the capacity of a particular locomotive may be available for those charged wtih the utilization of equipment. In the car mileage section data are compiled covering train mileage and car mileage by different classes of service—freight, passenger, and so forth, and, in the case of carriers which obtain tonnage statistics from the conductor's "wheel report" rather than the way-bill, gross and net tonnage by divisions and for the entire road are also computed here.

FREIGHT CLAIMS A LEGAL PROBLEM

Though the division of freight claims is included in many accounting departments, it does not seem properly to be a part of that organization. Rather, its location here seems to represent an intermediate step in the course of transfer from the traffic to the legal department. The claims division was universally a part of the traffic department at one time but the temptation to allow doubtful or even fraudulent claims, when made by valuable patrons, particularly if those patrons were located at competitive points, subjected the railway to serious loss of revenue and the honest shipper to distinct disadvantage. It seemed desirable, therefore, to remove this work from the traffic department and the usual first step was to transfer it to the accounting department. With many carriers it has gone, and with all it should go, to the legal department because, after all, a claim for loss

or damage raises not only the question of fact but also the question of liability, and the latter is a legal problem.

DIVISIONAL VERSUS CENTRALIZED ACCOUNTING

The very nature of their work is such that all operations incident to the work of the auditors of freight revenues and passenger revenues and of the car accountant must be concentrated in a single place. The expenditures division, on the other hand, because expenditures are essentially local in character, may be organized upon either a divisional or a centralized basis. If organized upon a divisional basis, all details are handled locally and the central organization at headquarters receives from the various divisional groups summaries which need only be combined to make available a complete record. This type of organization has two distinct advantages which, in addition to the inertia of early usage, have led to its retention by the majority of roads: it is in closer contact with the transactions involved, and those handling the work have a knowledge of railway matters such as is rarely true of clerks in a central office. However, because of the temptation of local offices to yield to local pressure with a resultant distortion of records, and because of the impossibility of maintaining a high degree of uniformity of accounts even under a prescribed system when work is decentralized, there has been a growing movement toward the centralization of expenditures accounting in the general office. This plan avoids the difficulties of the divisional organization, makes possible greater accuracy through closer supervision by responsible officers, and permits of the more effective use by the general administrative organization of the detailed records of all transactions.

REGULATION OF RAILWAY ACCOUNTING DEMANDED

Throughout the long period during which the carriers enjoyed complete freedom from public interference, railway

accounting was regarded as no more a matter of public concern and interest than the accounting of other private corporations. With the development of regulation, however, the divergence in carrier accounting, both as to system and as to detail, constituted a serious obstacle to a ready grasp of the financial status of the railways. Furthermore, the accounting plans of many carriers were so involved and complex as to make a clear understanding possible only after great effort and study. State regulation could result only in "confusion worse confounded"; the solution of the problem lay in federal control. The importance not only of control, but of absolute uniformity in railway accounting, has been urged upon three bases. Such uniformity is of inestimable service to the investor if a proper system be prescribed, and of equal importance to a public interested in effective regulation. For the corporation such uniformity is desirable also; without it, analysis is difficult and the intelligent comparison of results almost impossible. Because of the growing conviction that a standardized system of accounts was essential to intelligent regulation and justified in the interest of the carrier and the investor, Congress in 1906 gave to the Interstate Commerce Commission the power to prescribe a uniform system for all carriers subject to the Act. In 1907 a partial plan was submitted for the guidance of the railways but not until 1914, after careful study and effort, did the Commission promulgate the system of accounting now used by all carriers reporting to that body. Any other set of records is prohibited.

INVESTMENT AND OPERATING ACCOUNTS

In accordance with the final plan of the Commission, railway accounts are group under six main headings, the individual accounts under each heading being numbered. The first of these groups is entitled Investment in Road and Equipment accounts, and the numbers 1-100 inclusive have been reserved for them. Of these numbered accounts, 1-47,

inclusive, cover capital expenditures for roadway and structure; accounts 51-58, inclusive, cover equipment outlays; while expenditures of a general character properly chargeable to investment are grouped under numbers 71-77, here being included such items as organization and legal expenses, interest during construction, and so forth. The unused numbers are reserved here, as in the groups later mentioned, for future contingencies.

The second major grouping is termed Operating Revenue accounts and for them the numbers 101-200 are reserved. The group is divided into four sub-groups, Transportation–Rail Line, including accounts 101-116, Transportation–Water Line, accounts 121-128, Incidental, accounts 131-143, and Joint Facility, 151-152. To the various accounts of this group are credited, as the group name would indicate, all revenues derived directly from the operation of the line, together with such revenues as are incident to that operation. The most difficult problem involved in handling these accounts arises in determining whether revenues from certain sources, particularly such incidentals as privileges and rentals, are operating or non-operating in character. However, the Commission has, in various interpretations made by it, indicated in considerable detail the character of the items to be included under each account, thereby facilitating the proper and uniform handling of particular items by all carriers.

Since the directions of railway expenditures may be almost infinite in number, it is only natural that to the third grouping, Operating Expense accounts, should be assigned a broad range of numbers, 201-500, inclusive, being here reserved. This group of accounts has been divided into eight sub-groups, of which the first is Maintenance of Way and Structures, acccounts 201 to 279. To the individual accounts in this group are charged the expenditures necessary to the proper maintenance of road-bed, fences, buildings and other structures utilized in the operation of the property. The outstanding feature of the accounts here pre-

scribed, as well as of the following sub-group, is the fact that, in every instance where an initial outlay has been made for physical property, there is provided not only a corresponding maintenance account but also there immediately follows another to care for depreciation. As illustrative, the tie accounts may be used: investment—number 8; maintenance—number 212; depreciation—number 213. The second sub-group, Maintenance of Equipment accounts, 301 to 350, inclusive, covers all expenditures for locomotives, freight-train and passenger-train cars, motor and work equipment, and so forth.

The third sub-group, accounts 351-370, which is characterized as Traffic Expenses, includes all expenditures made in the solicitation or development of business and the determination of the rates thereon. Transportation–Rail Expenses, accounts 371-420, are those which arise from the actual movement of traffic by rail, including such important items as trainmen's wages, fuel, and station expenses. The desire of the Commission to separate rail and water operations, not only in the matter of revenues but also expenses, resulted in the designation of a fifth sub-group—Transportation–Water Expenses, accounts 431-440, under which are included all items of expenditure incident to the operation of water equipment used to supplement the transportation service of the railways.

Under Miscellaneous Operations Expenses, accounts 441-450, are grouped outlays which are necessary to the maintenance of dining service, the operation of hotels and restaurants and of grain elevators, stock-yards, and so forth. Under General Expenses, accounts 451-500, fall all items of cost which are not peculiarly assignable to any particular branch of the service. Here are included the salaries of all general officers, together with clerks and attendants employed by them; the cost of office supplies; law expenses; insurance, relief and pension outlays; valuation expenses, and so forth. The eighth sub-group, Transportation for Investment–Credit, represents a bookkeeping operation

which is purposed to transfer from Operating Expenses to the appropriate Investment in Road and Equipment account all expenditures resulting from the transportation of materials used in additions or betterments. In building an extension, for example, it may be necessary to transport rails, ties, and other materials, hundreds of miles; the performance of this work necessitates expenditures which are charged to the various operating expense accounts—maintenance of way and structures, maintenance of equipment, transportation-rail, general, and so forth. Yet such expenditures are *properly* chargeable to rail, tie, or other investment accounts, since the total capital cost of the extension must include the expense of transporting the needed materials to the place where used. As a correction, then, a general credit of an amount equal to the regular tariff charges upon such material is made to operating expenses as transportation for investment-credit, and the proper investment account is debited with the same sum.

INCOME AND PROFIT AND LOSS ACCOUNTS

The fourth major group of accounts are the Income accounts, 501-600. Among the credits here included, comprising accounts 501-530, there appear in addition to railway operating revenues a varied group of items often termed non-operating revenues, such as hire of freight-cars, rent from locomotives and from passenger-train cars, dividend income, income from funded securities, and so forth. Among the debits, accounts 531-556, there are, in addition to railway operating expenses, a considerable group of items oftentimes characterized as non-operating expenses. Of these latter, the more important are hire of freight-cars—debit balance, rent for locomotives and for passenger-train cars, rent for leased roads, interest on funded debt, dividend appropriation of income, and so on.

The Profit and Loss accounts, numbers 601-700, are purposed "to show the change in the corporate surplus or

deficit during each fiscal period as affected by the operations and business transactions during that period, by any disposition of net profits made solely at the option of the accounting company, by accounting adjustments of matters not properly attributable to the period, or by miscellaneous gains or losses not provided for elsewhere; and to show also the unappropriated surplus of the carrier at the date of the balance sheet."[1] Among the credit items, accounts 601-607, there appear, in addition to Credit Balance and Credit Balance Transferred from Income, such items as Delayed Income Credits, Unrefundable Income Charges, and Donations. Among the debit items, accounts 611-621, appear not only Debit Balance and Debit Balance Transferred from Income, but also Dividend Appropriation of Surplus, Stock and Debt Discount Extinguished through Surplus, and Loss on Retired Road and Equipment.

THE GENERAL BALANCE SHEET

The final major grouping comprises the so-called General Balance Sheet accounts, numbers 701-800. Among the primary accounts here provided, the debits or assets include numbers 701-729, and cover items of every character and description which represent a resource to the carrier. These asset accounts are grouped under four heads: Investments, Current Assets, Deferred Assets, and Unadjusted Debits. Among the credits or liabilities, accounts 751-784, appear, on the other hand, all items which represent an obligation of the reporting railway corporation. These accounts are classified under seven heads: Stock, Government Grants, Long-Term Debt, Current Liabilities, Deferred Liabilities, Unadjusted Credits, and Corporate Surplus. To aid the carrier in making up the balance sheet, the Interstate Commerce Commission has issued numerous special instructions and the final form in which it shall appear is prescribed.

[1] *Instructions—Profit and Loss Accounts*—Interstate Commerce Commission.

As might be expected, complaints have been lodged by many carriers against this system of accounting which has been prescribed by the Interstate Commerce Commission. These complaints have been offered on two principal grounds, the rigidity of the system and its failure to permit particular matters to be handled in accordance with the desires of individual carriers. However, it seems inevitable that the price of uniformity must be a considerable measure of rigidity, and the failure of the Commission to interpret particular accounts in accordance with a given officer's understanding or desire is scarcely to be regarded as a weighty charge against the system. Most assuredly the present uniform system of railway accounting is infinitely superior to the old individualistic systems from the standpoint of both the investor and the public, and its simplicity is in sharp contrast with the involved methods frequently employed by strictly private enterprise, which permits those so disposed to grossly misrepresent actual conditions and results. Indeed, once the generation of railway accountants, accustomed to the individualistic system, which is capable of modification at pleasure, has been displaced by younger men, the protest on the part of the carriers will largely disappear and the superiority of a system which offers simplicity and greater possibilities of comparison and analysis will be generally acknowledged.

Railway Statistics

An examination of the detailed operations of railway corporations or even of a single corporation, would give only a confused idea of results. In order that these results may be more clearly set forth and more readily available, statistical data are compiled. The purpose of such data is to secure summarizations which will facilitate comprehensive understanding and accurate comparisons. Comparisons may be made by a particular road between year and year or between division and division or, upon occasion, between

specific tasks. They may also be made between or among various roads. Such comparisons are of fundamental value to the corporation itself, for they enable it to see at a glance the trend of revenues and expenses, and to gain a more accurate knowledge of the strong and the weak features of its operations. These comparisons are of vital significance to the investor also, because upon them he must base his judgment of the direction of movement, forward or backward, of a particular property. Such data are invaluable to the public and to public bodies, likewise, for without them there would be available no sound basis for conclusions upon which action, purposed to modify existing relationships between carrier and public, might be predicated.

All statistics dealing with railway operations as a whole must rest upon data made available by individual carriers. Such data represent summarizations from the carrier's detailed records and may be compiled, as was indicated earlier in the chapter, in either of two ways. Within each major division of the accounting department there may be a statistical section compiling summary figures for expenditures, freight operations, passenger operations, and so forth, these summary figures then being placed in the hands of an organization whose function it is to assemble and organize the report. On the other hand, a separate statistical division may exist to which the various sections send detailed statistical data. In such case, not only must the data for the report be organized in the central office, but the responsibility for a major part of all underlying compilations and calculations rests there also.

The individual railway compiles its statistical data by units. The large carrier may summarize according to major divisions, by "lines east," and "lines west" or "lines north" and "lines south," and so on, but all carriers compile data by operating divisions. Figures for the latter generally represent a summary of data for the several accounting divisions which are coextensive with each operating unit. For specific purposes statistical data are often compiled for still smaller

units, covering, for a definite period of time, such restricted scope as the single station or a single type of traffic. But whatever may be the minor divisions for which figures are compiled, summary statistics are always made up for the entire property and these are the only data available to the public. Compilation by smaller divisions, however, is of distinct value, if not essential, to the carrier in the effective utilization of such data for closer analysis of business results.

SCOPE OF RAILWAY STATISTICS

The statistics compiled by the carrier cover a great variety of matters. One important grouping is that of service mileage statistics; data are prepared, showing revenue and non-revenue mileage by classes of service: freight train, freight locomotive—principal, helper, and light, and freight car, empty and loaded, with similar figures for passenger and switching service, as well as mileage according to the direction of movement and whether tonnage is shipped in carload or less-than-carload lots. Revenue data are compiled according to types of service, freight, passenger, and so forth, on the basis of road mileage and even by commodities and by classes of goods. In this connection also are computed average ton-mile and passenger-mile revenues. Expenses are shown according to Interstate Commerce Commission classification and are also computed according to mileage. Very complete data are given relative to equipment, not only as to the number of units of the various types but also as to expenses; the records give the total cost of each item, even to waste, for locomotives as a whole and for individual locomotives. Data of a similar character, though less detailed, are prepared for freight-cars, passenger cars, and other equipment.

Upon the basis of this information, and upon other facts given in special statements which may be requested by the Interstate Commerce Commission, such as accident reports, that body compiles its annual report, "Statistics of Railways

of the United States." In this volume appear a summary statement of results for the roads of the United States as a whole and the individual statements of all carriers reporting to that body. Among the summary statements are those which present statistics relative to railways in the hands of receivers, to mileage, equipment, railway employees, and capitalization—nominal and actual, as well as selected statements dealing with physical operations. Here, too, are found the income and profit and loss statements, the condensed balance sheet and investment in road and equipment; also miscellaneous items, such as fuel consumption and rail and tie replacements. All in all, the statistical data compiled by the railways and by them reported to the Interstate Commerce Commission are very complete, giving the student an excellent picture not only of the physical but also of the financial operations and status of the property.

FURTHER DEVELOPMENT OF STATISTICS

Despite the completeness of present railway statistical compilations, certain further needs have appeared. The most significant of these is perhaps the desirability of greater uniformity among carriers in the compilation of certain data as, for example, gross ton-miles. For the ascertainment of this figure some carriers include the weight of locomotive and tender while others do not. Another divergence in method appears in the determination of net tonnage figures, certain roads compiling them from the waybill, others from the conductor's wheel reports. It is also urged by those connected with the compilation of railway statistics that certain practical features are overlooked by the Interstate Commerce Commission in its requirements. A greater defect than these has been the complete failure of the carriers to develop and apply cost accounting in the field of railway operations, in consequence of which there is a complete lack of data showing at a glance the results of particular types of service or of particular trains. With-

out doubt the next decade will see a considerable improvement in the compilation and organization of railway statistics, but fundamental to that is a development of more intelligent accounting theory and practice by the carriers.

SOURCES OF DATA

For the individual seeking statistical information relative to a particular railway, the annual reports of that railway, as well as the data given for it in the annual *Statistics of Railways* issued by the Interstate Commerce Commission, are to be recommended. Poor's *Manual of Railways* is also an excellent source, as well as certain other volumes of an investment character, such as Moody's *Railroads*. Additional information of value pertaining primarily to railway operations as a whole may be found in the various publications of the Bureau of Railway Economics and of the Bureau of Railway News and Statistics, both of which are supported by the railways of the country. Certain states, usually through the railway or public utility commission, also publish information of a valuable character and, up to and including 1890, the United States Census contains most important data. Beyond these sources there are also a number of special reports which have been published by government bureaus and by Congressional committees upon the basis of investigations made. Indeed, as time passes, the number of reliable sources of information concerning railway operations have multiplied rapidly, with the result that there exists today a great body of material of an impartial nature, as well as a large amount of a partisan character which is intended to further the interests of labor, of the carriers, or of particular public groups. The plea of lack of access to material dealing with railways can excuse no one today for ignorance of the basic facts in that field, though material from many sources must be carefully scrutinized for propaganda. Many are the axes which their designing owners hope the public will grind.

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RAILWAY TRANSPORTATION

PART III

THE ECONOMICS OF RAILWAY ENTERPRISE

XVIII

COMPETITION

Explanation of the belief in competition and evidences of confidence therein. Competition of routes varied and far-reaching. Traffic competition: parallel routes; diverse routes; right-angled routes; end-to-end routes. Market competition almost universal. Extent of industrial competition. Importance of these two types. Competition assumes two forms. Reasons for the intensity of competition in the railway field—continuous operation; fixity of capital; increasing returns. Continuing influence of increasing returns upon railway policy. Dangers of competition soon apparent to the railways. Results of competition—immediate and ultimate.

At the time of its inception almost 100 years ago the railway business was regarded as competitive in character and by the great mass of the American people is still so considered. The persistence of that popular conception in the face of long experience can be readily understood when we appreciate the strong hold which competition had during the major part of the nineteenth century upon even those who gave careful and serious thought to economic matters.

This widespread belief in the competitive character of the railway business is not difficult of explanation. Perhaps the most important factor in determining public attitude was the dominant influence of the *laissez-faire* philosophy during the first half of the past century. When the railway first became an assured agency of transport, few indeed had challenged this controlling philosophy, and it was quite natural that the belief in the beneficence of competition in existing fields should be carried over into this new one, the field of railway construction and operation. Another major factor in fixing in the minds of the public the competitive character of railway business was the accepted relationship of those agencies which the railways superseded. The competitive operation of stage-coaches was

common in all settled portions of the country; through canals, boats owned by rival interests were operated; upon the natural waterways—river, lake, and ocean—keen competition existed among opposing groups. That the same protective influence which had served public interest in connection with these earlier agencies of transportation should function with expedition and efficiency in behalf of that same public in its dealings with this new instrument seemed wholly reasonable.

Two facts clearly indicate that confidence in competition dominated the thought as well as the action of the public concerning railways during many years. In the earliest charters granted this improved agency of transportation, provisions appeared relative to and governing the common use of the roadways constructed, by equipment variously owned. But indisputable evidence of the controlling force of this conception of the nature of the railway industry appears in the fact that, for almost a half-century following initial construction, the public sought protection from practices and policies which they regarded, rightly or wrongly, as inimical to their interests by encouraging the construction of rival lines rather than by the establishment of regulation. No small portion of the American railway mileage owed a premature existence to the desire on the part of the public to regulate existing carriers through the agency of competition.

COMPETITION VARIED AND FAR-REACHING

Competition in the railway field functions between or among various routes. Traffic moving from one point common to two or more railways to another point common to these same or to connecting lines has, from an early period, been subject to active competition on the part of carriers. Not alone, however, does competition function between railways—it functions also between rail lines and water lines and, more recently, between rail lines and truck lines. Water

competition is now most important along our extended coast, upon the Great Lakes, and on the generally recognized navigable streams, while truck competition is found everywhere, being especially keen in populous sections. Water competition is the more important type encountered, however—it affects not only railways directly concerned but also, in many cases, those operating at a considerable distance. As an example of this may be cited the influence exerted upon railway rates from Chicago territory into the South by the struggle between the railway and water lines which operate from the North Altantic to the South Atlantic ports. The railways east of the Alleghenies must fix rates with respect to water movement costs; the western lines, struggling with the eastern for participation in southern business, must conform closely to the scale of charges fixed by the latter or surrender a considerable portion of the traffic which they now enjoy.

TRAFFIC COMPETITION

Three distinct types of competition in the railway field are distinguishable. The first and the most obvious of these is *traffic competition*. This involved a struggle between or among routes variously situated for tonnage and for passenger movements which may exercise a choice of routes. Such traffic competition shows itself most obviously and most actively in the case of *parallel* routes, the carriers involved operating in essentially the same territory with rights-of-way lying perhaps side by side for many miles and with lines diverging but little throughout their entire course. Carriers so situated struggle for the control of business in the same production areas and the same centers of population along the entire route. Parallel building, though characteristic of neither the early period nor of more recent years, was all too common during the years 1850-1880, and represented a heavy waste until agricultural and industrial development absorbed the resultant surplus capacity to serve.

Only a small proportion of our total mileage lies thus side by side. Rather, while serving adjacent areas, railways possess in common many important centers. Competition among *diverse* routes is, therefore, perhaps the most common and the most important type of traffic competition, when measured quantitatively. Between Chicago and New York City goods may travel over any one of a half-dozen lines which operate in the intervening territory from as far north as Montreal to as far south as Norfolk; westward between Chicago and Minneapolis–St. Paul single lines operate which serve Milwaukee on the east and Oelwein, Iowa, on the west; between Chicago and Omaha lines run through a zone approximately 150 miles in width; between Chicago and St. Louis lines follow closely the Mississippi River on the one hand and the eastern boundary of the state of Illinois on the other. Between St. Louis and Omaha competing routes exist through as divergent points as Kansas City and Freeport, Illinois; from Chicago to Seattle traffic moves by such widely separated routes as the Canadian Pacific and subsidiary lines through southern Canada, and those roads which lie as far south as Pueblo, Colorado, from which point tonnage passes through Salt Lake City northwestward or westward and northward to destination. Indeed, from Denver traffic destined for San Francisco has a choice of routes which would carry it through Ogden, Utah, or points in southern Arizona. An infinite number of additional instances of divergent routes which compete for traffic between two common points might be given, but the general extent and the obvious importance of such competition makes further illustration unnecessary.

A third form of traffic competition, and one less familiar to the shipping public but nevertheless of fundamental significance to the shipper and carrier alike, is that often termed *right-angled* competition. It differs from competition of parallel and of diverse routes in that it usually represents a struggle between or among groups of lines rather than individual lines. One of the clearest illustrations of right-

angled competition is to be found in the struggle for the control of the grain traffic of the upper western Mississippi Valley. This battle is waged between the carriers serving Gulf ports on the one hand and those serving Atlantic ports, particularly the North Atlantic group, on the other. So sharp has been the struggle between these two groups and so nice is the present adjustment of rates upon grain traffic which may move either eastward or southward that the lowering of an intrastate rate upon corn in Texas, which directly affected the Gulf carriers alone, finally eventuated in a decrease in the rate upon flour from Minneapolis to New York City. The reduction of the intrastate rate upon corn forced a reduction upon the interstate corn rate from Kansas and Nebraska to points southward. This in turn necessitated a lower rate upon wheat, which compelled a reduction of the rate upon flour, because of certain relationships which the railways have found it needful to maintain between the rates upon corn and wheat, upon wheat and flour. To prevent an advantage in eastern and foreign markets accruing to the milling industry of the Southwest, in consequence of this reduction upon flour moving to Gulf ports, the carriers serving the spring wheat area were forced to make a corresponding cut in charges. And thus the train of causation ends—at least so far as the American producer and carrier are concerned. Another illustration of right-angled competition is found in the struggle for business moving from St. Louis to Atlantic ports and in export trade. Rail and water carriers from St. Louis southward compete among themselves and, as a group, vie with those rail carriers operating to the eastward. Denver is served from the Atlantic Coast by all-rail lines, as well as by water to Gulf ports and thence by rail. Another excellent illustration of this form of competition will be found in the north if the Canadian Government railway from Le Pas to Hudson's Bay is completed. That railway and connecting boat lines, operating northward to and through Hudson's Bay to Europe, will be in sharp competition with those rail lines

which operate eastward and southeastward to various St. Lawrence and Atlantic ports.

Yet another form of traffic competition, and a form which seems strange if not well-nigh impossible to one who has given little thought to the problem, is between roads which normally function as connecting or supplementing lines. This might well be termed *end-to-end* competition. To regard the Pennsylvania, operating from Chicago to the east coast, as a competitor of the Santa Fe, the Union Pacific, or perhaps the Northern Pacific, would seem to call for the exercise of an active imagination. Yet, in the case of tonnage movement from Chicago to the Orient, the Pennsylvania, connecting with steamship lines that operate through the Suez Canal, is an active rival of the Hill system which serves ocean lines that run westward to the Orient. Indeed, even in the case of traffic moving to Pacific Coast points, it has been found as a result of a survey that a considerable tonnage originating at inland points as far from the Atlantic Coast as Pittsburgh and Cleveland, even Chicago, instead of moving westward by rail moves *eastward* by rail, thence to destination by water via the Panama Canal or even around Cape Horn. Clear recognition of this fact by the Interstate Commerce Commission appears in the revision of the Transcontinental rate structure by that body in 1911, a detailed discussion of which will be given later.

MARKET COMPETITION

A second type of competition, perhaps not so obvious as competition for traffic but none the less highly important in the determination of railway policy, is that characteristically known as *market competition.* This type of rivalry is found throughout the entire United States and has exerted a tremendous influence not merely upon rate structures but even upon the actual building of the railways themselves. In the early years of American railway construction the desire to extend the market area tributary to a particular

commercial center actuated the building of considerable mileage. The Pennsylvania railroad made peculiar appeal to the residents of Philadelphia because its construction was purposed not only to extend the market territory tributary to that city within the state of Pennsylvania, but also to tap the great reservoir of traffic west of the Ohio River from which a heavy tonnage was expected to flow eastward. The Baltimore and Ohio was similarly a local project, designed to maintain the commercial position of Baltimore, and from Charleston westward the Charleston and Hamburg was built for a like reason. Indeed, the entire history of railway building abounds with illustrations of market competition as a driving force in railway construction.

Market competition has shown itself more widely and more persistently, however, in the adjustment of rates among the various commercial centers. It was early found necessary, as will be shown more fully in connection with the study of railway rate structures, to make certain adjustments on traffic moving from the east through Chicago and through St. Louis which would enable those two distributing centers to compete upon a relatively equal basis in the territory lying to the west and north. At a later time it was found essential that Kansas City and St. Louis be put upon a parity in Southwestern territory. In fact, the various rate territories of the United States abound with areas, some small, some large, which enjoy identical or comparable rates from other sections in order that equality of opportunity in the market may be maintained. Not only has market competition shown itself in the desire to control the distribution of goods, but it has likewise appeared in the struggle among important points to bring about the centralization, each in its own hands, of traffic originating in territory which might, because of its location, be tributary to any one of several such centers. An outstanding instance of this phase of market competition appears in the struggle among Boston, New York, Philadelphia, and Baltimore—indeed, ports still further southward are interested in the matter—for a

dominant position in the export trade, each city supported by one or more carriers whose interests are identical with those of the commercial centers named. Similar struggles exist among Pacific ports as well as among those located upon the Gulf, and an infinite number of illustrations of such rivalry may be found by a study of inland traffic.

INDUSTRIAL COMPETITION

Difficult to distinguish from the type of competition just discussed, competition which might be characterized as *of* markets, is another type, or a different phase of the type just considered, which may be termed *industrial competition,* or competition *for* markets. This type of competition, as distinguished from market competition, appears in the form of a struggle among producing units and producing areas for a dominant position in important market centers and market areas. Such competition is very keen, for example, between the industrialized New England and Middle Atlantic states on the one hand and the newly developed industrial area north and west of the Ohio River on the other, and this struggle evidences itself not only in Southern but also in Southwestern territory, in the great Inland Empire, and even upon the Pacific Coast. Producers of salt in Kansas struggle with producers of that same commodity located in Michigan for a dominant position in intervening territory. Kansas flour and Minnesota flour are keen rivals for the favor of housewives located to the eastward. Anthracite coal from Pennsylvania and soft coal from the Indiana and Illinois districts "lock horns" throughout many northern and northwestern states. The struggle between the growers of citrus fruits in California and in Florida is in evidence throughout the entire territory east of the Mississippi River and at points to the westward. Many additional illustrations might be given, as in the case of market competition, but it will always be found that the carrier is an active agent in the conflict.

So significant have market competition and industrial competition been in years past, and so important do they still remain, that it has often been asserted that railway traffic officials do not *fix* rates; rather, they make an effort to determine what forces have so operated as to *compel the carrier to accept* a certain rate or schedule of rates. The maintenance and the expansion of industries tributary to a particular road are of vital importance to the railway as well as to the owners of those industries. In consequence, therefore, any action on the part of one carrier, rail or water, which threatens to prejudice producers tributary to another in a certain market, compels the latter to take immediate and retaliatory action if its own future is to be adequately protected. To admit, however, that railways are often forced by market and industrial conditions to act in certain ways by no means justifies all vagaries in rates which the carriers have endeavored to explain upon such grounds.

COMPETITION ASSUMES TWO FORMS

Railway competition has evidenced itself in two forms. The more spectacular and, in years past, the more important of these has been competition in rates. In a struggle for business, rates were very generally pared and, as the contest became keener, were sometimes cut so sharply that the carriers handled competitive business at an out-of-pocket loss. Fluctuations during the period of a rate war were generally both wide and very rapid, downward movements being checked by agreements which usually attempted to restore the old rate or one approaching it. These agreements, however, were seldom observed for any extended period and their failure always resulted in renewed warfare.

Another form which railway rivalry takes is service competition. During the period characterized by rate wars, service competition, though existent, occupied an unimportant position. Once rate competition had been brought under relatively effective control as it was during the latter

part of the nineteenth century, competition in service alone remained, and for many years it played an important part in the efforts of carriers to acquire existing business. Of late years the various railway associations have succeeded in establishing limits, however, even in the field of service competition; yet, in connection with both freight and passenger movements, there still remains the effort of individual railways to furnish faster service and a service of a somewhat higher character than that offered by competitive lines. This rivalry in service functions almost exclusively in connection with the struggle for traffic, and plays but a minor part in either market or industrial competition.

REASONS FOR INTENSITY OF COMPETITION

In so far as competition has functioned in the railway field through either voluntary action on the part of railway management or relationships enforced at the hands of the public, it has been peculiarly intense in character and destructive in results. Indeed, so widely does the railway business vary from the typical commercial enterprise, that a knowledge of the results of active rivalry in the latter field gives no understanding of the effect of unrestrained competitive action in the transportation of persons and of goods by rail.

The railway business differs from other enterprises in important particulars. In the first place, it is subject to the necessity of continuous operation. Not only is regularity of service a fundamental requirement and demanded without exception by the public, but the railway finds that self-interest, as well, compels the maintenance of essentially continuous service. If such service is not maintained in the competitive portion of its field, business becomes habituated to movement over the rival line; if no other outlet for traffic exists, the railway must maintain regular service to prevent the complete throttling of industries thus wholly dependent upon it. In either case, then, even that temporary cessation of activity which results from closing down the

plant for a brief period, injures the carrier to a degree that is unusual in any other field of business. Furthermore, because much of the expense incident to the rendition of transportation service is of a continuous character, a railway corporation oftentimes finds it economically more desirable to operate continuously in the face of heavy losses rather than to cease operations altogether and thus suffer a still heavier loss. Such continuous operation necessitates, whether service be rendered on alternate days or during alternate hours, a certain minimum standard of maintenance, both of roadway and structure and of equipment. In the face of this minimum expenditure, which changes comparatively little with changes in volume of traffic, the incentive to struggle for additional business is irresistible. Steady loss will cause the ordinary commercial or industrial enterprise to close down its plant partially or wholly, but not so the railway business: its nature is such that, despite financial results, it must maintain a continuous service or withdraw permanently from the field. And occasionally the law denies recourse to this alternative. The necessity of continuous operation is alone sufficient to explain the unusual severity of railway competition under conditions of inadequate traffic.

NON-TRANSFERABILITY OF RAILWAY CAPITAL

A second factor which operates to make competition in the railway field exceedingly sharp is the peculiar degree to which capital in that enterprise is fixed and, in consequence, incapable of utilization for an alternative purpose. When an ordinary enterprise becomes insolvent, creditors usually have the choice of either of two solutions: the plant may be closed and dismantled, with land and buildings devoted to other purposes and equipment transferred elsewhere; or operations may be continued, following reorganization or following the sale of the property and assumption of control by an entirely new management. In the railway field,

however, insolvency under normal conditions offers no alternatives—continued operation alone is possible because the sacrifices demanded of creditors in dismantling and closing out the property would be heavier, except under most unusual circumstances, than they would be compelled to undergo through reorganization. This is true because relatively little of the capital invested in roadway or structures can be recovered in dismantling the property: the one exception to this statement which has ever come to the writer's attention was a small property built through a plains country prior to the European war, which was "junked" about the time that prices of steel, lumber, and other items had reached their peak. Terminal sites, right-of-way, even track materials and structures, normally have comparatively slight value except as component parts of an operating unit. Indeed, instead of an insolvent railway being eliminated from the field as a competitive factor, which is characteristically true in the case of commercial or industrial enterprises, such a property becomes an even more dangerous competitor because, while operated by a receiver, it is relieved of the necessity of meeting fixed charges currently and is therefore in a position to cut deeply into established rates with greater impunity than before receivership. However precarious, therefore, may be the financial situation of a particular property, two factors tend to force it to remain in the field—the necessity of continuous operation and the peculiar degree of fixity of capital. And so long as that property remains, it will compete actively for traffic.

RAILWAY BUSINESS ONE OF INCREASING RETURNS

A third element which has intensified rivalry and which has been important in furthering competitive action upon the part of prosperous and "weak" carriers alike, is the universal operation, until recent years, of the law of increasing returns. This fact is explained by the high proportion of constant to total costs. Expenditure by the typical Ameri-

can railway for the maintenance of roadway and structures is made necessary by the action of the elements to an even greater degree than by the use of the property. Outlays for the maintenance of equipment are attributable in part to the action of the elements and to deterioration through age, also, though such outlays are progressively due, as traffic increases, to use in service. Expenses incident to the movement of traffic are also constant, in part; whether one train or twenty trains be operated over the line each day, it is necessary to maintain essentially the same administrative staff at division points, the same station forces, and other like groups concerned with movement of business. Traffic expenses, miscellaneous expenses, and general expenses will also vary little with the amount of traffic handled, the proportion for these being essentially constant. In addition to such operating expenses there is, of course, that group which might be termed fixed charges; these are almost wholly constant in character. Because the relation of expenses to the extent of operations will be understood more clearly if definite percentages are given, Table 21 is presented for careful study.

TABLE 21

CONSTANT AND VARIABLE EXPENSES IN RAILWAY OPERATION

TYPE OF EXPENSE	PERCENTAGE OF OPERATING EXPENSES			PERCENTAGE OF TOTAL EXPENSES		
	Both	Constant	Variable	Both	Constant	Variable
Maintenance of way and structure	16	10.5	5.5	12.0	8.0	4.0
Maintenance of equipment	28	10.0	18.0	21.0	7.5	13.5
Transportation	50	25.0	25.0	37.5	18.75	18.75
Gen'l, incl. Traffic, Misc., etc.	6	6	4.5	4.5	4.5	
Total	100	51.5	48.5			
Capital Costs				25.0	25.0	
				100.0	63.75	36.25

This table shows that approximately two-thirds of the necessary expenditures of a railway under given conditions are constant in character, while but one-third vary in proportion to the amount of business done. In view of this

fact, it is clear that if an individual railway can double its traffic it will increase its expenses by approximately one-third, enjoying therefore a tremendously increased margin as profit. Indeed, so great is the gain which results from handling additional business that an individual carrier can afford to move such business at distinctly lower rates than those normally charged—therefore the great temptation to indulge in cut-throat tactics in the struggle to secure additional tonnage. And such extreme competitive action may characterize the relationship existing between roads which in nowise feel the pinch of financial necessity as well as those which are fighting for their corporate existence. To the extent, therefore, that a given railway property is able to operate upon a basis of increasing returns, competition will characterize its dealings with other carriers so long as law or custom precludes a mutual understanding among independent properties concerning rates or the grouping of railways under some form of intercorporate relationship.

Here, perhaps, it is in place to add that the railways of the United States have operated upon the basis of increasing returns to a peculiar degree throughout almost their entire history. During each successive stage of railway development, facilities remained far in advance of the traffic demands made upon them: speculative interest, promoters' activities, public aid, and other factors all combined to that end. Not until about 1906 did the railways of any extensive portion of the United States have more than a theoretical knowledge of the existence of a law of decreasing returns. Since that time, however, it appears clear that many of the Trunk Line properties have been the losers through an increase of traffic, unable as they were to increase their facilities because of the weakness of railway credit. As yet, a great portion of the mileage in Southern and Western territories is benefited by an augmented business but, in the not distant future, increasing cost will appear even in those areas unless facilities expand far more rapidly than they have during the past two decades.

This operation upon a broad scale, territorially, of the principle of decreasing returns would seem to promise a reduction in competition, and this may result. Nevertheless, a particular property is slow to realize that conditions have been reversed, so it is probable the struggle for more business will continue for years after additional traffic has become a mill-stone about the neck of a static property. Then, too, each property hopes for conditions which will permit an expansion of facilities—and in the meantime endeavors to possess itself of all available business. So, even after it no longer operates, the law of increasing returns will be an active factor in promoting competitive activities, if for no other reasons than those which rest upon inertia and hope.

During the early years of railway construction and operation in the United States the public encouraged railway management in its competitive activities. However, this management soon learned that competition in the railway field was not the "life of trade" but was, rather, a two-edged sword which injured him who wielded it as well as him who was attacked. Yet, when railway management sought to curb this destructive force, public policy was so directed as to enforce upon the carriers a relationship which the hard school of experience had taught them to be unsound. Indeed, for almost a century it has been only as the railways have discovered ways to evade our laws that they have succeeded in minimizing the destructiveness of competition.

IMMEDIATE AND ULTIMATE RESULTS OF COMPETITION

The results of competition may be regarded as immediate and as ultimate from the point of view of both public and the railway. The outstanding immediate gain to the public which flowed from railway rivalry was a lower level of rates. Offsetting this advantage, however, there has appeared the objectionable fluctuation of rates previously mentioned and a still greater evil, discrimination. Although discrimination might exist under a monopolistic control of

the railways, it is unquestionable that competition has served to magnify greatly both the extent and the degree of discrimination and to make its influence felt throughout the entire United States. Not only has *place* discrimination resulted, with abnormally low rates between competitive points and unreasonably high rates, relatively or absolutely, at non-competitive points, but *personal* discrimination has also developed. At competitive points the railway found that tonnage increased more rapidly if it allied with itself, through especially favorable rates, a conspicuously aggressive and successful man in each field of business enterprise than if it sought instead the favor, upon the basis of regular rates, of *all* shippers who were interested in that field. So, without hesitation, the carriers ignored another common-law obligation: competition was a ruthless master.

For the railways the immediate result of competitive activity was universally depleted revenues. Though competition usually "broke out" in connection with a particular type of traffic—wheat, cotton, live stock, or immigrant, tourist, and so forth, it normally broadened until practically all traffic was affected. Frequently it spread from one distinct type of service to another, as from passenger to freight or the reverse. With the depletion of their revenues, all railways indulging in the luxury of active competition inevitably found, within a brief time, that they faced a decline in the condition and extent of their property, which definitely lessened their capacity for rendering service to the public. Frequently, indeed, the effect of cut-throat competitive activity was so serious upon a weaker carrier involved that it contributed importantly to the actual failure of the property and its enforced reorganization. Such failure, the consequence of a too heavy burden of fixed charges, generally resulted in reorganization which accomplished the reduction of those charges. This reduction so fortified the property that it was able to compete in a still more vigorous fashion and with less danger of insolvency when the next rate war opened!

From a public standpoint an ultimate result which was chargeable in considerable degree to railway competition was increased hostility to the carriers, based upon the inequitable treatment of persons and places which developed. Perhaps more than from any realization of the ineffective nature of competition as a conservator of public interest, our present-day policy of regulation resulted from this hostility. Upon the railways the ultimate effect of unrestrained competition was so unhappy, for them its menace so great, that management was forced to seek its elimination or, at the least, its control. To this end, the successive methods of minimizing or of eliminating competition among rival carriers were evolved. In the following chapter a discussion of those methods appears.

NOTE: References to literature dealing with the subject of competition, as well as of combination, will be found at the close of the following chapter.

XIX

COMBINATION

The rate agreement. Pooling agreements appear. Problems and success of the pool. Division of territory. Movement toward closer unification and consolidation: community of interest; stock ownership; the lease; merging of properties. Factors promoting unification and consolidation. Need for unity of action among the railways and opportunities for that unity. Progress by voluntary action or compulsion. The monopolistic character of the railway industry. Tendency with respect to the entire net and the position of the single carrier. Analysis of the traffic of a railway. Modification of types by extraneous influences. The business problem under competitive and monopolistic conditions. The problem of public policy.

QUITE naturally the railways sought to bring competition under control through voluntary cooperation, since that method involved simpler relationships than any other and necessitated no changes in corporate organization on the part of the participating carriers. Cooperation first appeared in the form of the interrailway agreement covering matters of rates and services. Almost without exception these agreements called for the maintenance or increase of rates, occasionally adding a stipulation which limited the quality of service to be rendered. The advantage of these agreements lay primarily in the ease of adoption and in the readiness with which adjustments could be made to meet changed conditions. Furthermore, such an arrangement involved no complexities of contractual relations and no modification in corporate structure—in short, from every standpoint, it represented the simplest method of controlling competition. However, certain fundamental weaknesses in the simple agreement soon became evident. A strong temptation always existed for the individual carrier to violate secretly the terms of the arrangement for the purpose of increasing tonnage at the expense of rival lines, a

temptation which proved irresistible again and again, especially to the weaker properties. The inducement to break faith was furthered by a second defect, the inability of the parties to the agreement to enforce it against a violator because of the extra-legal character of the understanding. Such contracts were regarded under the common law as agreements in restraint of trade.

APPEARANCE OF POOLING AGREEMENTS

After the rate agreement had failed repeatedly to control competition, pooling was attempted. Two types of pools were tried. The traffic pool, the less successful of the two, involved the assignment of a definite percentage of competitive tonnage to each of the rival carriers and called for the maintenance of that percentage as nearly as possible through the life of the agreement. The money pool represented, rather, a division of earnings—a contract under which each carrier was permitted to handle all competitive business which it could secure but under which the carrier was required to deposit, for later distribution among the rival lines, a certain portion of all receipts from competitive freight and passenger business. The purpose here was to leave to the handling road merely a sum sufficient to cover the actual outlay incident to the movement of the traffic in question. Periodically the pool fund was divided among the competing carriers in such manner as to secure to those not receiving that portion of the tonnage assigned to them under the agreement an indemnification for such deficit.

Each type of pool had weaknesses peculiar to itself. Under the traffic pool agreement, the main difficulty was the maintenance of assigned percentages. This obligation was frequently undertaken by certain large shippers who were known as "eveners," and these eveners were compensated for shifting a portion or all of their tonnage from one line to another, as conditions necessitated, by a rate somewhat below standard. Such a policy involved favorit-

ism, however, and was, in consequence, objectionable from a public point of view. But the railway difficulty arose out of the fact that these eveners, never content with the advantages afforded them, exacted increasing concessions and ultimately demanded greater reductions in rates, as compensation for the service rendered, than the railways could afford to grant. Another difficulty faced by the carriers, under both the traffic and the money pool agreements, was the readjustment of percentages from year to year. This readjustment was made upon the basis of traffic handled during the previous year and therefore a constant temptation was dangled before every party to the pooling agreement to increase the tonnage handled during a particular year for the sake of an increased participation during the following period, even though the price of that increase might be an immediate out-of-pocket cost to the carrier in question. Still another problem faced by the money pool arose in connection with the decision of what proportion of gross income from competitive business should be retained by the handling carrier and what proportion should be turned over to the pool. In practice, many of the pools were mixed in character: a certain percentage of the competitive traffic was assigned to each carrier participating in the pooling agreement, and the fixed percentage of gross receipts was paid to the pool only on that part of the business in excess of the agreed proportion, the sums so paid being distributed later among those carriers receiving less than the proportion assigned.

Despite the various difficulties encountered under the pooling agreement, the pool, as finally evolved, proved highly successful and resulted in the effective control of competition in many quarters. Indeed, so successful were these arrangements that several pools, organized in the early seventies, continued to operate successfully until eliminated by law in 1887. This success was built largely upon two facts, namely, that the railways had come to a somewhat late, but none the less clear, realization of the necessity of

eliminating active competition, and that the typical pool always had in its possession certain moneys belonging to carriers which were parties to the agreement. The weaknesses of the pool lay primarily in its extra-legal character, similar thus to the rate agreement, and in the intense degree of public opposition aroused by it. The public believed that such agreements represented unmistakable evidence of a movement toward monopoly in the railway field and that they were of such nature as to preclude future reductions in rates and improvements in service. That such conclusions were erroneous is not significant—intense and universal public opposition was sufficient to bring legal action by both state and Federal Governments, purposed to eliminate this method of minimizing competition.

DIVISION OF TERRITORY

A third type of cooperation which did not appear during the years of early construction, largely because of the implicit belief of even the railways themselves in the essentially competitive character of their business, involves the division of territory. Because of the peculiar degree to which the law of increasing returns applied in the railway field until recent years, it would have been highly advantageous if construction had been so planned as to result in the location of pioneer lines in essentially diverse territory. But not until unhappy experiences with competition had awakened railway management to the fundamental fallacy of unrestricted competitive activity did such agreements make their appearance. Yet even when made, they proved unenforceable, either in honor or at law, and the negotiation of such arrangements was characteristically followed by a virulent outbreak of competitive building which would result in the construction of mileage many years in advance of the economic ability of the territory served to support it. The agreement made in the seventies between the Santa Fe and the Missouri Pacific, outlining a division of the state

of Kansas, may be cited as an illustration of this method of controlling competition. The agreement was soon broken, however, by the management of the former road, and the violation resulted in the Missouri Pacific immediately punishing both itself and the Santa Fe by building hundreds of miles of essentially duplicate trackage throughout central and southeastern Kansas. Though such understandings were regularly violated in early years, hope was not abandoned and, with the stabilization of railway relationships during the past several decades, has come an observance of many tacit agreements between carriers as to the territory which each will occupy and develop in the near future. Tangible evidence of such agreements is, however, and quite naturally, difficult to secure.

MOVEMENT TOWARD CLOSER UNIFICATION AND CONSOLIDATION

At times, blocked by law from cooperating in an effective manner, at times, desirous of unifying properties more closely than was possible through mere agreements of the type just discussed, the consolidation of railway properties was early undertaken. Various methods have been employed to accomplish this end, the particular scheme which was most suitable in a given case being determined by many factors, legal and financial. Of these methods the least tangible and the most difficult to eliminate has been that unification attained through the so-called "community of interest." Under this plan there sat upon the board of directors of each of the several competitive lines operating in a considerable area, representatives of the other properties which served in that territory. In consequence of this situation, it followed that in the determination of matters of policy the voices of all interests were heard, a condition which tended to eliminate destructive competition. Such community of interest existed because of a definite need for closer cooperation than the law intended, and rested upon

a foundation of negligible security holdings by roads or individuals involved.

In outward form somewhat similar to community of interest, but in underlying character quite different, was stock ownership as a means of unifying the interests and policies of individual lines. The control of a competitive carrier through the ownership of a majority of its stock, or through a sufficient entrenchment to secure an important voice in management, presented two distinct advantages, one financial, the other strategic. It made possible the control of a property through the investment of a comparatively small sum, especially when the stock was widely distributed. Where it seemed essential to secure and maintain large holdings, the actual outlay was minimized by the use of the collateral trust mortgage bond. In the second place, control through stock ownership made for a high degree of mobility; if, at any time, a continuance of control seemed undesirable for legal or economic reasons, the property could be surrendered with no resulting corporate difficulties.

A third method of consolidation employed was that of leasing competitive or supplementary properties. Such leases run for widely varying periods, some for a comparatively brief time such as 5 years, others for as long as 999 years, a term which is tantamount to ownership. The lease presents two distinct advantages: it makes possible the essential physical unification of the properties without the addition of new securities and, furthermore, it can be so drawn as to provide for a readjustment of financial relations as economic and social conditions justify. The lease, however, burdens the operating corporation with charges of an essentially fixed character. In consequence, unless sound judgment has been exercised in the acquisition of control by this method, the lessee corporation often finds itself seriously embarrassed during periods of depression because of its obligation to operate these supplementary properties.

The fourth method employed in the consolidation of railway properties has been the outright sale of one road to

another, with the merging of the properties involved. The financial tendency of such consolidation has been to increase capitalization, though often this increase is in the form of stock which saddles the property with no fixed charges. Two distinct advantages of sufficient importance to justify its extensive use must be credited to this method. Absolute control for the future rests with the purchasing corporation and the acquired property can be so developed as to meet expected needs without thought of future intercorporate adjustments. In addition, the railways thus joined through sale can be completely unified and operated as a single property, thereby enjoying the increase in efficiency which is almost certain to result.

FACTORS PROMOTING UNIFICATION AND CONSOLIDATION

As has been stated, this movement toward the unification and close coordination of railway properties, which became conspicuous after the seventies, found its first impetus in the obstacles to effective cooperation erected by the public. Another force, however, which contributed significantly to the furtherance of consolidation during the period 1897-1903, a brief span which witnessed a great many important consolidations and coordinations, might be said to be the general movement toward "big business." This movement found expression in the industrial realm during those few years in the organization of numerous trusts and holding companies purposed to accomplish monopolistic control, partial or complete, in their respective fields. Although railway consolidations have taken place during other periods, the most extensive movement in that direction, by all odds, followed closely our recovery from the business depression of 1893, with its numerous railway receiverships, and terminated with the depression of 1907. Indeed, the temporary cessation in the expansion of business which occurred in 1903 marked the peak of the movement, though it was of importance for several years more.

NEED FOR UNITY OF ACTION

Despite the strong emphasis placed upon the maintenance of competition by the public, the importance of unity of action among various carriers in the interest of most effective service has been clearly recognized since the first few years of railway development. True, the earliest properties were built during a period which magnified the desirability of unlimited competition and frowned upon any efforts looking toward cooperation, and under economic conditions which tended to further emphasize the competitive phase of railway relationships. Because of the slow service which resulted from inability or failure to cooperate, there arose in the freight field the so-called "fast-freight lines," purposed to overcome, in so far as possible, delay in the movement of traffic. As years passed, however, the fundamental necessity, both from the standpoint of the public and the railway, of unity of action on the part of competitive as well as supplementary lines, received much wider recognition. Indeed, the increased rapidity of movement of goods and persons over long distances during recent years is the result of the more rapid transfer of traffic from one carrier to another as much, perhaps, as from any actual increase in speed.

Unity of action is also essential to convenience in the movement of traffic, freight and passengers. Much, too, has been accomplished in this direction by the railways. Little can the shipper of today who loads a car for a distance movement with fruit, vegetables, or other perishables, with live stock, or even with another type of commodity which demands less attention than these mentioned, visualize the problem of shipping similar commodities during the early decades of railway growth: consignments had to be transferred not merely from car to car but from station to station every few hundred miles in order that they might continue on their way over connecting lines. This superiority of through movements, apparent from long years of

experience in the field of freight traffic, has gradually been recognized in the passenger field; in consequence, it is little more than an ordinary matter today for a passenger to ride from one important railway terminus to another, covering perhaps several thousand miles, without finding it necessary to transfer from the coach in which the journey was begun. Indeed, of late years cooperation among railways has developed to such a point that a passenger in Chicago finds it possible, for example, to settle himself comfortably in one car which will carry him without transfer to Atlanta, in another which will place him in Seattle and in a third which moves to San Francisco, these cars operating over the lines of two railways in two instances and over three in the third. The equipment so operated, however, is largely Pullman in character. To the ordinary traveler, the satisfaction growing out of through service over portions of several lines is still almost wholly denied.

From observation and from statements already made, it is clear that many opportunities remain for better coordination and for a greater cooperation, to the distinct advantage of shipper and of carrier alike. Most conspicuous among these opportunities is the better coordination by connecting carriers of both freight and passenger schedules. All too often does it seem that passenger schedules are carefully and painstakingly constructed in such fashion as to compel the passenger to miss as many connections as possible and consume a maximum period of time upon his journey. However, this absence of coordination in passenger schedules is no more marked than in freight, though more conspicuous because of our personal knowledge of the former. Greater cooperation might easily be had among the railways, too, in the establishment of through service over various lines, to the advantage of both railway and passenger. Another type of cooperation which would result happily in the long run for the carriers, and immediately for passengers and shippers, would be the joint use of both passenger and freight stations. Here again the need of cooperation is more

evident in the passenger field—there are few persons who have not had the experience of missing trains simply because of the time consumed in transferring across town to another station. Convenience in securing freight from and delivering it to the carriers might also be greatly increased were some plan evolved which would accomplish the districting of the large cities and provide for the acceptance and delivery of freight at certain points for all roads. A like gain would be enjoyed by shippers at small stations were it possible, through joint use of terminals, to eliminate much of the extra haulage arising from the usually scattered locations of freight stations. From a railway point of view, yet another type of cooperation may well be developed further—that of the joint use of certain facilities, such as tracks and bridges; this would generally increase speed and augment plant capacity, yet make possible an actual reduction in costs. A splendid illustration of a step in this direction is found in the recent agreement negotiated between the Southern Pacific and the Western Pacific for the joint use of a considerable parallel trackage in Nevada.

PROGRESS BY VOLUNTARY ACTION OR COMPULSION

Of these and the other many steps that may be taken in the railway field in the direction of more effective cooperation and coordination, few have actually been accorded even serious thought. The patron of a common carrier is reasonably entitled to maximum speed of movement of person or goods and maximum convenience at a minimum cost. The failure of the railways to cooperate in such a way as to accomplish these ends in a thoroughgoing manner can be assigned to various causes, but outstanding among them is the extreme emphasis placed by the public upon the maintenance of a maximum of competitive activity in spirit and in letter. The fear which always exists among competitors that in any cooperative action the rival will secure an advantage and the inertia resulting from long years of non-

cooperation are also important barriers. To best serve public interest, therefore, it would seem that existing prohibitions against cooperative action on the part of competitive carriers might well be removed. In their stead, adequate power should be given to regulative bodies to compel the railways to effect better coordination of schedules, to accomplish an increased unification of terminal facilities, and even to arrange for the joint use of trackage, bridges, and equipment where such joint use would serve public convenience. Indeed, it would seem that one of the outstanding developments which may be reasonably expected during the next decade is a further extension of cooperative action, voluntary or enforced, in the railway field. If adherence to competition as a governing principle materially hinders that movement as it has in the past, the concept of competition as a ruling force in the field of railway transportation must give way.

MONOPOLISTIC CHARACTER OF RAILROADS

In the discussion of the railway industry thus far, the competitive phase of the enterprise has been stressed. Discussion from that angle, however, unquestionably overemphasizes the significance of competition in the field. To an increasing degree the railway industry has come to be regarded by student and public alike as monopolistic in nature. Upon analysis it appears there are discernible certain economic characteristics which justify this change in point of view. As defined by Ely, "Monopoly means that substantial unity of action on the part of one or more persons engaged in some kind of business which gives exclusive control, more particularly although not solely, with respect to price." In the carrier field, since the property produces a certain service and sells that service to the user, the railway represents the production-selling type of control. If monopoly exists, it must be able, barring interference on the part of public authority or the operation of some price-

determining force other than competition, to fix the charge for its service at the point of highest net returns, adjusting the service offered to the demand at a given price.

A careful examination of the railway business indicates that there are factors which make for monopoly with respect to the *entire* railway net. The first and perhaps the most significant of these is the law of increasing returns. The operation of this principle, which makes the handling of additional business more remunerative for an existing carrier up to the point of maximum efficiency than for an additional line, and even the cost of constructing and operating a multiple track line much less proportionately than that of several single-track lines which are handling the same amount of business, tends to concentrate business rather than to scatter it if the operation of economic laws be undisturbed. Another factor which promotes unification in the railway field is that railway management must ultimately recognize the basic advantages resulting, both to the public and the carriers, from a close articulation of railways in matters of both service and property used. The need and advantages of integrating more closely our railway properties become increasingly evident and, barring public interference, this movement will gather force as years pass.

MONOPOLISTIC POSITION OF THE SINGLE CARRIER

There are also certain influences which tend to make for a monopoly in a given area by a particular line. The outstanding cause here operating is the actual scarcity of suitable sites. In a plains region, where two or more railways parallel each other mile after mile, this factor is not brought home to the casual observer. Yet, if the problem of securing a suitable location in a mountainous territory or contiguous to important streams is given even brief consideration, the physical impossibility of constructing other lines which are able to compete effectively with the carrier already in possession of the only natural ground suitable

for the purpose, can readily be seen. Indeed, no matter how enthusiastically the public might support a competitive régime, it is impossible to conceive of certain properties which, through early construction, have secured possession of the only existing advantageous locations, ever being subjected to a sufficient degree of competition to be worthy the name. Still another phase of this limitation of suitable locations, and one of steadily growing importance, is that of satisfactory terminal sites. However fortunately a railway may be located throughout its hundreds or thousands of miles of wanderings, if it begins nowhere and ends "up a tree," that property can never become strong. Only through ready and cheap access to the great gateways of trade can a railway prosper and not only is the actual limitation of space available for terminal facilities readily recognizable but the truly prohibitive cost of securing entry into metropolitan areas by a "parvenu" in the railway field is also apparent. Already older properties have been able to stifle the competition of carriers which might otherwise have become keen rivals through the strangle-hold possessed by them upon the terminal situation; and this is particularly true with respect to the freight service, for here voluntary cooperation in the use of terminal facilities remains practically non-existent.

Yet, even though suitable sites may be available for line construction and for entry into important terminal cities, the extent of the development of the territory served may be such that but one carrier is economically justified in occupying the field and perhaps that carrier was compelled to do business upon the basis of an inadequate return for a considerable period. A situation of this character will give to the carrier already in the field a monopolistic grip for many years upon the area occupied. This grip is often further strengthened by agreements with other carriers which are most likely to build into the section, accomplishing thereby a division of territory among roads. In short, there appear to be operating strong forces which make for

monopoly of railway service not only in the United States as a whole but also in particular areas. That marked progress has not been made in this direction is largely assignable to two major causes. The legal barriers against combination which have been erected by the various states and by the Federal Government explain the persistence of competitive systems in great measure. Yet this persistence is also attributable in part to inertia which makes more or less difficult the transformation of an industry, long regarded as competitive in character, into one so organized as to be more nearly consonant with its monopolistic nature.

ANALYSIS OF THE TRAFFIC OF A RAILWAY

To emphasize the *potentially* monopolistic character of the railway business does not give a true picture of existing facts, however; under present conditions a considerable degree of *actual* monopolistic power is exercised by the railways over certain traffic. That we may the more clearly analyze the various types of traffic movement and determine their economic character the more accurately, let a concrete example be used (See Figure 28 on page 462). Suppose that two lines compete for business between the termini, A and B: upon the one line are situated the intermediate stations C and D, upon the other, intermediate stations which may be called E. Let it be assumed, further, that into A there operates a third carrier with stations E′, and into B a fourth carrier with stations E″ along its line. Between A and B, over the road upon which C and D are located, various types of movements can take place. Of these, movements from A or B to B or A, respectively, are clearly competitive in character because of the existence of a second carrier operating through E between those two points. Movements from C or D, intermediate points between A and B, to either of the termini are of a somewhat different character. Although no competitive carrier operates through C or D, the power

of the one carrier in the field with respect to outbound traffic is more or less modified: if rates upon outbound movements from these intermediate points are made too high, similar goods from E, E′, or E″, as the case may be, will tend to eliminate goods produced at C or D from the market, to the detriment both of producers located there and of the railway serving those intermediate points, since it thereby loses tonnage. Only within limits may the carrier fix its outbound charge upon a monopolistic basis, those limits being broad or narrow depending upon the character of market or industrial competition faced in the market at A or B. Such traffic might be regarded as semi-competitive or semi-monopolistic in character.

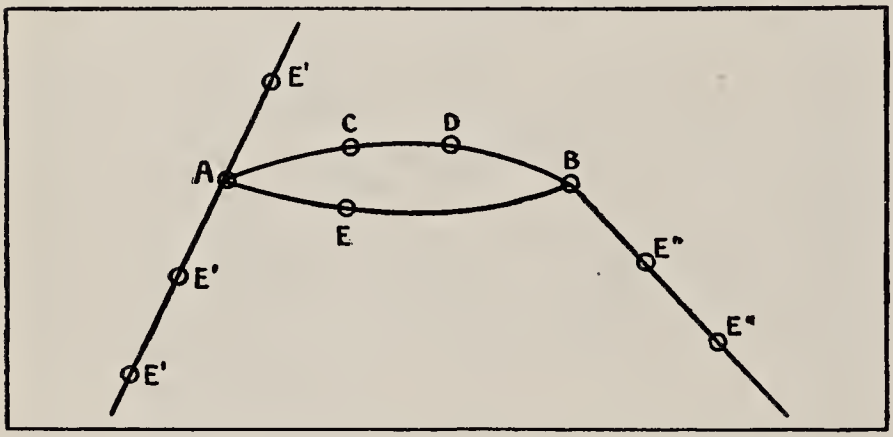

Figure 28: A traffic lay-out showing possible tonnage movements.

A third type of movement over the carrier operating from A to B through C and D is that from terminal to local point—from A or B to C or D. Since no traffic can reach C or D except over the rails of the one carrier, this carrier is in an economic position to fix rates on inbound tonnage on whatever basis it sees fit. If far-sighted in its policy, however, that rate level will be determined by the maximum long-time gain of the corporation—in short, will be fixed in accordance with the law of monopoly price. This traffic, then, is clearly monopolistic in character. The fourth type

of movement possible over the line in question is between C and D. Again the shipper and consignee enjoy no choice. Goods must move over the one line at the rate fixed or not at all, except as an abnormally high rate level may stimulate the appearance of some competitive carrier; but if the carrier charges within the limits fixed by the law of monopoly price, it is unlikely that, unless traffic be very heavy, competitive service by rail or highway could be established. This fourth type of movement is, then, from the standpoint of both railway and public, identical with the third in its economic nature—completely monopolistic.

From the discussion preceding it is clear that the traffic of a railway is in part competitive, in part monopolistic, and, in part, partakes of the nature of both. Only a careful and detailed investigation could show what proportion of the total traffic moved by the American railways is of one type and what proportion is of another, but no such investigation has been made. Suffice it to say here that the competitive proportion is, without doubt, much smaller than popularly thought and that the monopolistic elements are correspondingly more significant. Indeed, were accurate data available, it is quite possible that the contention sometimes urged—that competition benefits only a small portion of the tonnage movement and the burden of such benefits rests upon that portion of the traffic which is monopolistic in character—is measurably sound.

MODIFICATION OF TYPES BY EXTRANEOUS INFLUENCES

The fundamental economic character of the various types of traffic movements which have just been discussed may be modified, however, by extraneous influences. Through interrailway agreements competition for traffic between A and B may be brought so effectively under control that such movements might better be characterized as monopolistic than as competitive, though, as has been indicated previously, the difficulty of maintaining those agreements for

any length of time is always present. An equally marked influence may be exerted for a time over charges made for inbound movements from terminals, and movements between local points, normally monopolistic in character, by the desire of the railway to stimulate economic development in that section. Such stimulus will, however, be temporary in character because of its very purpose.

Another and more important modification of the essential economic nature of various types of traffic may arise out of public regulation. Regulation has had, in general, a twofold purpose—the preservation of competition where competition exists and can be maintained, and the modification of monopolistic power where it is found to govern. This modification has been sought through various channels. By positive legislation the railways have been prohibited from charging a through rate in excess of the sum of the locals between intermediate points. As a further control a long-and-short-haul clause, prohibiting a higher rate for a shorter than for a longer movement over the same line and in the same direction, except as some reason more cogent than railway policy could be adduced, has been added to the regulative statutes of state and nation. But the final and most effective effort made by the public to control the railway in its exercise of monopoly power has been through the fixation of maximum rates. This power is now possessed by all railway commissions, state and federal, and has been exercised extensively in public interest, as will be shown later. Through such positive regulation, as well as through the operation of other influences, effective relief from monopolistic control has been gained, but the continued existence of regulative bodies and the frequent exercise of power by them stand as clear evidence of the strong monopolistic tendency of the railway business and the extensive failure of competition to render adequate protection.

In this and the preceding chapter the railway has been discussed from a competitive and from a monopolistic point

of view. One additional matter of importance remains—to contrast the business problem faced by the railway under a competitive and under a monopolistic régime. When operating under competitive conditions the first and most urgent problem confronting the carrier is that of getting the business. The business once obtained, the railway then becomes interested in such a coordination of facilities as will enable that particular carrier to better accomplish its ends—a fact which explains in part the suspicion entertained by one carrier of the motives of another when a greater coordination of facilities is urged. With the business obtained and such coordination of facilities accomplished as will make possible its handling with reasonable efficiency, the railway is then free to devote its efforts to the development of additional traffic. But under a competitive régime this last consideration has been and must always remain an afterthought, rather than a matter of first importance.

It is at this point, therefore, that under a monopolistic régime the great difference appears. A monopoly, under no necessity of expending its efforts to secure a portion of existing traffic will tend, because of self-interest, to give greater consideration to the creation of new business than competitive railways, driven to seek an easy and immediate increase in traffic, can afford to give to long-time efforts. Indeed, so closely will the interest of a carrier monopoly follow the effective coordination of facilities needed to render a service which offers maximum speed and convenience at minimum cost to itself, with a careful and detailed study of the possibilities of the development of more business, that these two considerations will oftentimes seem to be coordinate in the mind of the management. To be sure, under monopolistic control of the carriers, publicly recognized and confirmed, effective regulation over all matters must be exercised in public interest, unless that monopoly be governmental, for there no longer exists, with respect to even a minor portion of the traffic, either active or potential competition as a protective factor.

THE PROBLEM OF PUBLIC POLICY

The determination of public policy with respect to railways is of fundamental importance. Shall it be enforced competition, which appears to be the goal of anti-pooling and anti-trust acts? Shall it be modified competition among a relatively small number of competing systems of balanced strength, subject to the control and direction of regulative bodies? Or, shall it be monopoly, with that complete and thoroughgoing control through public agencies which must necessarily accompany private monopoly if public interest is to be protected? And, if monopoly, should it be privately or publicly owned and operated? Experience has seemed to justify a negative answer to the first major question but the problem involved in choosing between the remaining two is no less important and no less pressing. The answer is freighted with tremendous importance to the public and to business enterprise alike. Yet, because of a pathetic lack of knowledge of the problem on the part of a great portion of our citizenry, because of demagogic and self-seeking leadership, and because of deep-rooted public antagonism, that answer is in danger of resting too largely upon prejudice rather than upon a clear understanding of the fundamental economic principles involved.

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XX

CAPITALIZATION AND CAPITAL VALUE

Capitalization variously conceived. Gross and net capitalization of the American railway net. Increase in the bond ratio and its evils. Capitalization per mile of line of American railways. Differences among individual lines. Comparison of capitalization per mile of line with foreign railways. Types of railway stocks. Borrowed capital in the railway field. Complexities resulting from the overlapping of claims. Capitalization and true worth. The problem of valuation. Earning capacity as a basis of valuation. The nature and validity of historical cost. Types of cost of reproduction. Advantages and weaknesses of reproduction cost.

In preceding chapters the nature of the corporation and the organization of the railway enterprise for operation were discussed. The portrayal of the financial policies and practices of that corporation remains, also a consideration of the problem which arises from the relationship between the amount of financial obligations outstanding and the worth of the property. These matters are important not only to the business unit and the investor but also to the public, and have commanded increasing attention with the development of regulation. A thorough understanding of both the financial structure of the railway corporation and the relationship which capitalization bears to the true property value, is fundamental to an appreciation of past conditions and future development.

Capitalization is conceived variously by different groups. To the accountant, capitalization is a figure representing the sum total of the permanent liabilities of a corporation. To the financier, concerned only with earnings, capitalization is essentially synonymous with the property account and therefore is regarded as an asset instead of a liability. The economist conceives capitalization to be the declared value of the business, the sum total of the amounts of the various

classifications of paper issued by the corporation and to which value has been assigned by it. It is, in short, the representation made by the business as to its worth.

GROSS AND NET CAPITALIZATION OF AMERICAN RAILWAY NET

In the determination of the capitalization of the American railway net, an analysis must be made if an accurate figure is to be had. On December 31, 1921, the Interstate Commerce Commission reports outstanding $22,291,635,792 of various types of paper. Included in this figure are $5,208,759,799 worth of railway securities which are owned by railway corporations themselves. Instead of the gross capitalization mentioned above, therefore, the figure $17,082,875,993 represents more accurately the capitalization of the American railways since it eliminates a considerable duplication of securities. If, however, a *true* net capitalization of our railways were to be had, it would be necessary to deduct from this latter figure the worth of extensive properties of a non-railway nature held by the American carriers, such as mines, timber lands, industrial enterprises, and so forth, as well as of certain properties not yet employed in the rendition of service to the public. Just what the sum is which would fairly represent the worth of railway-owned properties not now "used and useful" in the rendition of carrier service can only be estimated, but it would not fall far short of $2,000,000,000. As illustrative of these "outside investments" it is declared that about 70% of the nation's anthracite coal acreage is controlled by but a small number of roads. True net capitalization of the American railways, therefore, probably approximates $15,000,000,000.

INCREASE IN THE BOND RATIO

Of the gross capitalization as of December 31, 1921, $9,075,637,910 was outstanding in form of stock while the

TABLE 22

CAPITALIZATION, BOOK COST, AND FAIR VALUE OF AMERICAN RAILWAYS

Year Ended	Total Railway Capital Issued*	Net Capitalization	Cost of Road and Equipment	Fair Value‖
June 30, 1890	$ 8,984,234,616	$ 7,577,327,615	†*$8,133,665,432	.....
1891	9,290,915,439	8,007,989,723	†*8,444,856,144	.....
1892	9,686,146,813	8,294,689,760	†*8,690,082,843	.....
1893	9,894,625,239	8,331,603,006	8,937,545,760	.....
1894	10,190,658,678	8,646,600,008	9,073,470,532	.....
1895	10,346,754,229	8,899,572,695	9,203,490,619	.....
1896	10,566,865,771	9,065,518,857	9,500,327,733	.....
1897	10,635,008,074	9,168,071,898	9,709,329,228	.....
1898	10,818,554,031	9,297,167,776	9,760,581,424	.....
1899	11,033,954,898	9,432,041,731	9,961,840,805	.....
1900	11,491,034,960	9,547,984,611	10,263,313,400	.....
1901	11,688,147,091	9,482,649,182	10,405,095,085	.....
1902	12,134,182,964	9,925,664,171	10,658,321,376	.....
1903	12,599,990,258	10,281,598,305	10,973,504,903	.....
1904	13,213,124,679	10,711,794,078	11,511,537,131	.....
1905	13,805,258,121	11,167,105,992	11,951,348,949	.....
1906	14,570,421,478	11,671,940,649	12,420,287,938	.....
1907	16,082,146,683	.....	13,030,344,328	.....
1908	16,767,544,827	12,833,591,510	13,213,766,540	.....
1909	17,487,868,935	13,914,302,363	13,609,183,515	.....
1910	18,417,132,238	14,375,529,748	§14,557,816,099	.....
1911	19,208,935,081	15,044,484,894	15,612,378,845	.....
1912	19,752,536,264	15,125,533,485	16,004,744,966	.....
1913	‡19,796,125,712	‡15,366,472,253	16,588,603,109	.....
1914	‡20,247,301,257	‡15,759,093,913	17,153,785,568	.....
1915	21,127,959,078	16,307,502,580	17,441,420,382	.....
1916	21,092,072,245	16,336,000,429	17,689,425,438	.....
Dec. 31, 1916	21,049,308,582	16,332,578,328	17,842,776,668	.....
1917	21,249,357,241	16,401,786,017	18,574,297,873	.....
1918	20.784,832,841	16,454,339,035	18,984,756,478	.....
1919	20,950,175,145	16,550,310,683	19,300,120,717	.....
1920	21,891,450,785	16,993,930,263	19,849,319,946	$19,450,000,000
1921	22,291,635,792	17,082,875,993	20,329,223,603	19,925,000,000
1922	.....	.....	.....	20,225,000,000

* The figures for 1915 to 1921, inclusive, include actually outstanding, nominally issued, and nominally outstanding securities, that they may be comparable to previous years.

† 1893 investment less increases each year on account of change in classification in 1893.

‡ Class I and II roads and now-operating subsidiaries.

§ Investment for 1910 originally published is increased by $170,000,000, estimated reserve for accrued depreciation, to make figures comparable with those for other years.

‖ As fixed by the Interstate Commerce Commission in 1920, plus increase in investment.

remainder represented unmatured funded debt. This percentage of 59.3 which the funded debt bears to the total capitalization is in itself a matter of no little importance and represents a gradual increase, during the 20 years preceding, from practical equality with outstanding stocks. This increase has resulted from several factors. During that period there has been a considerable concentration of ownership

of railway mileage. To secure funds for the purchase of other lines, bonds have often been issued of either the mortgage or collateral trust type. The appearance of the holding company in the railway field has also tended to increase the bond ratio, since the increase of bonds rather than stocks made possible the control of large properties with a minimum investment. A third factor which has given a strong impetus to this movement is the preference of the investor in railway securities to participate in the enterprise as a creditor rather than an entrepreneur. This preference rests primarily, it would seem, upon the greater safety of the bond as an investment and the disappearance of speculative opportunities in railway shares. The regulation of railways in such fashion as to limit the return upon stock to a figure below that available to the investor in the industrial field has made stock financing in a highly competitive market difficult, and thus compelled an increase in the proportion of bonds outstanding to total capitalization. Then, too, the prosperous road is often tempted to issue bonds instead of stock, just as its "poor relation" is compelled to do; the larger the proportion of bonds bearing a low interest rate is to the total of securities outstanding, the greater is the stockholder's advantage during prosperous years.

This movement toward bonds has not been without its evils. Railway fixed charges have increased step by step with the increase in interest-bearing paper outstanding and with that increase has come a lessened ability to withstand the financial strain imposed by recurring periods of depression. A second important objection, primarily from a public standpoint, lies against this tendency because it promotes the centralization of control of increasing amounts of capital in the hands of those who have, by comparison with the magnitude of the property dominated, an altogether too small stake in the enterprise. This results in the exercise of power quite out of proportion to the risk involved, a situation without social or economic justification. Still a

third objection to the movement toward bonds lies in the fact that, as the bond ratio increases, the margin which

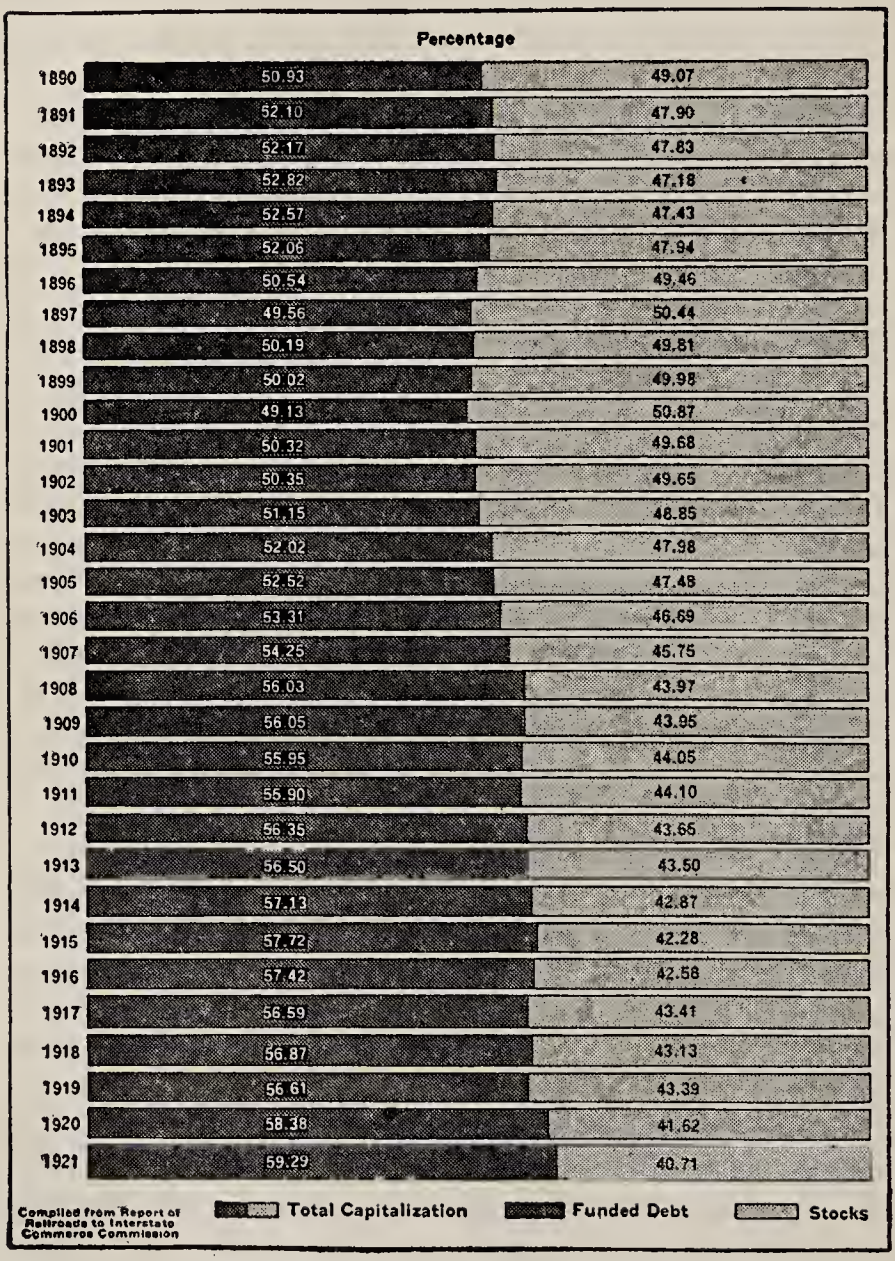

Figure 29: Proportion of funded debt and stock of American railways to total capitalization, for the years 1890-1921.

should provide against future necessity diminishes. Indeed, it might be said that the inability of a railway corporation, needing funds, to issue any paper but bonds except upon onerous terms, points the way clearly to early and serious financial difficulty, if not to receivership. If American railways are to maintain a strong financial position the present proportion of bonds must not be increased and to this end every effort should be made, during more prosperous periods, to finance additions and betterments through the issuance of securities which have only a contingent claim upon the earnings of the business.

CAPITALIZATION PER MILE OF LINE

A statement of even the net capitalization of American railways in terms of billions of dollars means little: the magnitude of such sums is too great and an aggregate figure gives no conception of the extent of that system. A more valuable figure, because comprehensible, therefore, would appear to be the capitalization per mile of line, $69,816 in 1921 for the entire railway mileage of the United States, eliminating railway-owned securities. This per mile of line figure has been increasing steadily since statistics were first compiled by the Interstate Commerce Commission, the figure of 1921 being approximately 40% greater than the figure for 1890, though during that period the total capitalization of American railways, excluding railway-owned items, increased almost 150%. This upward movement has been due, in a measure, to certain objectionable instances of financiering during the past generation, but the increase has resulted largely from a higher development of the plant during those years. Trackage has increased much more rapidly than mileage, older properties have been improved, and the more recently built lines have, in general, been compelled to bear greater construction costs, due to more difficult topography and higher prices of land, labor, and materials. In fact, the capitalization per mile of line of

American railways may properly be expected to advance steadily with the years. The necessity of an intensive development of properties, the mounting costs of elements entering into construction, and the more general provision for capital expenditures through the sale of securities rather than out of earnings, as prosperous lines have so often done in years past, will gradually increase the capitalization figure even under a most conservative financial policy.

As might be expected in a country with as diverse conditions and with properties as variously managed as those in the United States, there exists a wide variation in capitalization per mile among individual companies. An investigation made in 1906 which made available the true net capitalization per mile of line of American railways, showed that, although the average for the United States was $58,050 for railways considered, this figure varied, for properties operated through essentially the same territory, from as low as $31,000 for the Chicago and North Western to as high as $90,000 for the Chicago Great Western; from $84,500 upon the New York Central to $169,000 for the Erie; from $86,400 on the Pennsylvania, a splendid road with expensive terminals, to $92,500 for the Wabash, long a financial derelict. This wide range of capitalization is due to various factors. Among the more significant are the relationship existing between miles of line and miles of track, the cost of terminals in large cities, the structure of the system—whether largely main line or possessing a considerable branch mileage—the financial organization of the company and, last, but by no means least, the general financial policy which has governed throughout its entire corporate history. Not infrequently will a single factor cause a striking change in the capitalization of a railway property—an extension of mileage, the construction of expensive terminals and even the declaration of a stock dividend. As illustrative of the first may be cited the influence of the Puget Sound Extension, together with certain minor factors, upon the capitalization of the Chicago, Milwaukee and St. Paul: in 1916 the figure

per mile of line was more than double that of a decade earlier. Evidence of the second appears clearly in the proposed Chicago improvements of the Illinois Central, and of the third in the case of the Lackawanna in 1921.

Capitalization per mile of line for the United States might be greatly increased, however, and yet fall far below the capitalization figures shown for many foreign railway systems which are hardly the equal of our own. Table 23, below, shows the capitalization per mile of line of the railways in certain of the more important countries in Europe and elsewhere, for the most recent date available.

TABLE 23

CAPITALIZATION PER MILE OF LINE OF FOREIGN RAILWAY SYSTEMS [1]

Country	Year	Capitalization
United Kingdom	1922	$275,013
Canada *	1922	70,571
France	1913	148,169
Germany	1920	160,486
Holland	1913	82,810
Italy (State Roads Only)	1920	171,159
Norway †	1921–22	66,097
India †	1919–20	50,481
Japan	1920–21	118,992
China	1918	125,971
New Zealand †	1919–20	64,800
Argentine ‡	1913	53,073

* Excludes Grand Trunk.
† Much narrow gage mileage. ‡ Various gages.

However, these figures do not reflect with great accuracy true comparative conditions. In certain of the older and more developed countries which show a very high capitalization per mile of line, a policy of capitalizing re-investments fully has been long followed. Then, too, construction costs have been greater in those territories: indeed, type of construction—duplicate trackage, permanent road-bed, and so forth—explains in great measure the wide gap between for-

[1] Bureau of Railway News and Statistics, *Railway Statistics, 1922.*

eign and American figures. On the other hand, the low capitalization shown for certain countries is to be explained by a marked predominance of narrow-gage mileage, the inadequate equipment of the property, and the absence of permanent roadway development. In a general way, the conclusion seems thoroughly justified that American railways are capitalized at the lowest figure per mile of line of any of the railways in the world, type of construction considered, unless, perchance, Canada should be able to show practical equality with us.

TYPES OF RAILWAY STOCKS

As has already been indicated, railway capitalization consists, in common parlance, of stocks and bonds, or as sometimes classified by writers in the field of finance, of owned and borrowed capital. Owned capital in the railway field consists largely of common stock which represents a residual claim upon the earnings of the property. Preferred stock is another type which has often been issued. Such stock has preference as to dividends, assets, or dividends and assets, usually the last. Three types of preferred stock with respect to claim upon earnings are found in the railway field. Of these the most common is what might be termed ordinary preferred, giving to the possessor merely a prior claim upon the earnings to be distributed by the management. Another type of preferred stock is participating preferred. This confers not merely the right to preferential treatment in the payment of dividends up to the percentage fixed as a maximum, but also permits participation in excess earnings during periods of railway prosperity. Chicago and North Western preferred is a stock of this type. The third type of preferred stock found in the railway field is cumulative preferred which, in addition to giving to the possessor first claim upon any earnings distributed, permits the accumulation of unsatisfied claims from year to year until met.

Preferred stock has usually been issued for a specific and

definite purpose. In the general corporate field it has frequently been used in cases of consolidation to cover items of real value contributed, common stock representing a speculative interest in future earnings. In the railway field, however, preferred stock generally has been issued for one of three purposes. Perhaps the corporation has desired additional funds when common stock could not be sold advantageously and conservative financing discountenanced an additional issue of bonds. Or, a management, needing additional funds and yet desiring to restrict voting power, has issued non-voting preferred stock; its double purpose is thus attained without an increase in fixed charges. A third purpose, which explains particularly the issuance of cumulative preferred stock by railway corporations, has been, in the reorganization of financially decrepit properties, the reduction of fixed charges. If the property is to be rehabilitated such charges must be cut down, yet the holders of junior liens upon the property demand some degree of protection. To accomplish both ends in so far as possible, the reorganization plan has occasionally called for the issuance of even cumulative preferred stock. This accomplishes, if a seemingly contradictory phrase may be used, the substitution of contingent fixed charges for those charges of a definitely fixed character which accrued upon the superseded bond issue or issues.

BORROWED CAPITAL IN THE RAILWAY FIELD

Two types of borrowed capital must be considered, though it is the second which is of fundamental significance. The usual purpose of short-term borrowing, generally in the form of notes, is to furnish needed funds during a brief interval until the money market permits the issuance of long-time securities upon reasonable terms. Advantageous though such financing may be in theory, practice has frequently shown it dangerous. When it becomes necessary to satisfy these short-time obligations the financial situation may be

in nowise improved and therefore long-time financing may be just as objectionable as before; yet refinancing on a short-time basis, even though possible, involves heavy expense. Short-term loans are inconsiderable in total as compared with the long-term issues which have been marketed by the railways, though, as years have passed, the importance of issues running for only a few years has grown.

Long-time issues may perhaps well be classified as to the security offered the investor—though experience shows that no railway bond is more secure, whatever may be the protection offered, than the capacity of the specific underlying property to earn. In general, the investor may be protected by a specific and direct lien upon property or by the general credit of the corporation. The so-called secured issues may be protected by claims upon realty, upon personalty, or upon realty and personalty. Of those secured by a claim upon real property, real estate bonds, land-grant bonds, divisional bonds, and terminal bonds are the more common. Those secured by mortgage upon personal property are, in general, of two types, the collateral trust mortgage bond and the equipment bond. The former, protected by collateral deposited in trust, has frequently been employed to establish a degree of control which often approaches ownership by certain interests: securities which give a controlling interest in one corporation are mortgaged for the purpose of securing funds to extend that control over another. The rather extensive use which has been made of this type of bond largely explains the difference between gross and net capitalization in the railway field. Equipment bonds have been used by many railroads, even by those which are financially strong. Equipment so mortgaged is used by the railway and paid for, in a sense, upon the instalment basis. The equipment trust certificate, which can be regarded as a railway obligation only indirectly, has practically displaced the equipment bond, however; its greater safety has won the investor's favor. Most

important among the issues secured by a claim upon both realty and personalty are those variously known as general or "blanket" mortgage bonds, possessing a senior or junior lien, perhaps a mixed lien, upon the entire property of the corporation.

A second type of bond which occupies an intermediate position between those issues which are secured by a direct lien and those resting upon the general credit standing of the corporation, is the income bond. This bond, like cumulative preferred stock, has commonly been issued in connection with reorganizations, the holders of junior liens with a definite annual claim upon earnings accepting, in lieu of their previous holdings, bonds which are secured as to principal by a specific lien upon property, but upon which the interest is contingent upon earnings. A third type of long-term issue which lacks all specific security is known to the American investor as the debenture bond. This bond is merely a promise to pay which is protected, both as to principal and as to interest, by the general credit and earnings of the property. Interest is payable only if earned, and, even in case of default upon the principal, no specific recourse exists; general action against the corporation is the only course open. Such bonds, however, have been but little used by American railways because of the unwillingness of investors to purchase them; when issued, they have been marketed largely in European countries where the debenture bonds of local corporations enjoy high standing because of stable earnings.

OVERLAPPING OF CLAIMS

When discussing the capitalization of a given railway property, it is necessary to realize that a single railway corporation may have outstanding several types of stock and many classes of bonds. This can readily be seen by a casual examination of the stock exchange listings. The existence of numerous overlapping bond issues gives rise to an in-

volved and difficult situation if inadequate earnings force a reorganization. In the event of such a readjustment, the possessor of a junior lien upon a specific fraction of the property may find himself in a better position than the owner of a bond secured by a lien, yet further removed, upon the entire property of the corporation; on the other hand, the owner of a senior lien upon certain of the property may find his position far less favorable than is the position of the owner of a junior lien upon another portion of the property which is more essential to the successful financial operation of the business.

CAPITALIZATION AND TRUE WORTH

In the discussion thus far attention has been given exclusively to the problem of capitalization, its nature and amount. The problem of the relationship between capitalization and capital value remains. Capitalization constitutes a statement of worth by the issuing corporation. It purports to represent the value of the property and, as the balance sheet will evidence, is offset by asset entries of equal amount. The desirability of a reasonable correspondence between the value placed upon the assets of the enterprise and actual value of those assets becomes more apparent as time passes.

This is true in the field of corporate finance in general, but particularly true in the field of quasi-public corporations. With such reasonable correspondence a more intelligent and readier grasp of the actual situation may be had by investor, shareholder, shipper, and regulative body alike. The maintenance of such reasonable correspondence between nominal and real values permits all concerned to know whether assets remain stationary, increase, or decrease in net worth as a result of a specific policy. Further, it gives at a glance the figure upon which this business, "burdened with public interest," is entitled to a reasonable return. The determination of the correspondence between

capitalization and capital, or, stated otherwise, paper and actual worth, involves the ascertainment not only of the total of outstanding securities but also of the value of the property. The determination of the former is a relatively simple task, but the ascertainment of the latter involves the entire problem of valuation.

THE PROBLEM OF VALUATION

This problem of valuation is an exceedingly difficult and complicated one, but, because of its importance in the entire public utility field, an effort will be made to set forth certain fundamentals, an understanding of which is essential to an evaluation of the many and diverse statements made in economic and political circles. In *Smythe* v. *Ames*,[1] Justice Brewer enumerated a variety of elements which must be considered in the ascertainment of the worth of a public utility property, but, fearing that in this lengthy enumeration some considerations may have been inadvertently overlooked, he closed his statement by declaring that not only must the elements named be given consideration but that due weight should also be given to "all other elements of value." That such a general pronouncement is of little value in determining the worth of a particular property, is obvious. However, in his catalog of elements were named the three bases which have been urged most strongly as fundamental upon commissions and courts in the ascertainment of true property value—earning capacity, historical cost and cost of reproduction.

EARNING CAPACITY AS A BASIS OF VALUATION

Because of its almost universal acceptance in the industrial and commercial field, earning capacity has received generous support from private interests as a method of determining the value of railway properties. The mechanical

[1] 169 U. S. 466.

determination of worth upon this basis is simple: true value is the quotient resulting from the simple process of dividing normal earnings by that rate of return which has been fixed as reasonable in the given field. The ascertainment of earnings and the fixation of the rate of return present the only difficulties and these are of minor importance. Yet, however applicable such a principle may be in a field where earnings are determined by the free play of competition, it certainly cannot serve properly as basic in a field in which not only partial monopoly exists, but where earnings are largely the result of positive action by a regulative body. For regulated enterprises the use of earning capacity as a major factor in determining the rate base would tend to result in an inflexible rate structure. But a more important objection lies against this method: the whole soundness of its use is challenged by the circular reasoning involved. For, in essence, its use in the field of regulated enterprise would base earnings upon earnings, capitalization upon capitalization. Still further, it may be added, any method of determining property values which would cause those values to vary from time to time with the parsimony or generosity of a regulative body, cannot be accepted as satisfactory or just. In only one case has earning capacity been recognized as basically sound in the determination of plant value in the public utility field—that of the so-called misplaced or obsolete plant. Typical instances of such use may be found in the valuation of lumber or logging roads after the lumber traffic has disappeared, or of properties which have been built far beyond immediate public need. As a fundamental factor in the determination of the worth of a railway property, then, earning capacity must be rejected.

NATURE AND VALIDITY OF HISTORICAL COST

A second basis of valuation is historical cost. This figure is ascertained by finding the actual total cost of the property from beginning to date, or, as some would have it, the in-

vestment "wisely and prudently" made, deducting therefrom any subtractions which may have occurred during the life of the property. It properly includes not only tangible items such as buildings, machinery, roadway, and so forth, but also any intangibles which may exist and for which actual, legitimate expenditures have been made—franchise value, going value and going concern value, good-will and so forth. From this total figure deductions are made for depreciation only when that depreciation exceeds the normal for the enterprise in question. Historical cost has certain very definite advantages to recommend it as a basis of determining value. In general, cost is considered as an index of worth. Therefore a figure in accord with this principle would seem to have a certain natural basis in popular psychology. Furthermore, historical cost is definite in nature and, if data are available, can be ascertained with a high degree of accuracy. In the third place, historical cost as a basis would tend to reward the investor in proportion to the actual sacrifice which he made, protecting him against a value decline on the one hand and denying him increments of an unearned character on the other.

The criticisms which have been lodged against historical cost as a fundamental basis emphasize certain theoretical objections and practical difficulties. In the case of older properties, and particularly in the case of railway properties which have resulted from the consolidation of many smaller properties in times long past, there are numerous and wide gaps in cost records which are difficult, if not impossible, to bridge. Then, too, original cost under the system of accounting now followed, which necessitates the making of replacements on the basis of first cost rather than present cost, tends to prejudice the interests of those who poured their money freely into railway enterprises during a period when costs were relatively low but the speculative character of the enterprise was pronounced. Another objection to this method, particularly as a sole basis of value determination, lies in the fact that historical cost figures may repre-

sent most efficient and careful construction on the one hand, or careless construction and excessive costs, even carefully concealed fraud, on the other; in consequence there is failure to reward efficiency and honesty, to penalize inefficiency and graft. Yet, a half-century, even a score of years, later, it is almost impossible to determine whether costs have been abnormally low or abnormally high—and, if the latter, whether the cause was beyond the builders' control or such as to justify paring sharply the investment accounts. Finally, if historical cost serves as the sole, even the primary, basis in determining railway values, to avoid a clear injustice to the investor, the rate of return must be sharply increased during years of inflation if the property was built during a period of low or normal prices. Conversely, if built during a period of high costs, the rate of return should be cut sharply during normal times. For, after all, a "fair return" is definitely related to the purchasing power of funds.

COST-OF-REPRODUCTION

A third basis of value determination is that which has been named cost-of-reproduction. Cost-of-reproduction is essentially a theoretical basis, and may be figured as cost-of-reproduction-new or cost-of-reproduction-new-less-depreciation. Further, cost-of-reproduction may mean the reproduction of an identical plant in all essentials or it may mean the reproduction of a substitute plant capable of performing the same service, a quite different matter in any field in which rapid technical progress features. And again, cost-of-reproduction may be estimated either upon the basis of physical conditions as they existed when the plant was originally constructed or as they would be at the present time, did the plant not exist. In general, it may be said that cost-of-reproduction-new-less-depreciation of the identical plant under original conditions is the basis of the estimate made, though the inadaptability of the plant to its use or some peculiar situation may justify a modification of this

general policy. In the determination of cost-of-reproduction not only must all physical property, "used and useful" in the rendition of the service, be included in the inventory, but also, as in the case of historical cost, all immaterial or intangible items for which a cost can be established.

Certain evident advantages flow from the adoption of this policy. It gives a figure which, at a particular time, represents the present economic cost of a property necessary to the rendition of a particular service, and its use avoids the handicap which historical cost places upon the more recently built plant in a developed territory: the cost of the more recent properties is generally far greater than the older, and hence a scale of rates yielding a fair return upon the historical cost of the older would be quite inadequate for the newer. It also recognizes value increments and decrements in the public utility field, just as those elements are recognized in the general field of property. And, finally, the employment of this principle places the burden of excessive cost upon the shoulders of inefficient or dishonest management and fully rewards the efficient and honest builder. To offset these advantages, however, there are certain definite objections which have been urged against all types of cost-of-reproduction as a basis of valuation. The acceptance of such a principle will, in any progressive society, mean increasing capital value and, in consequence, increasing service costs. In the second place, cost-of-reproduction is a matter of estimate, and actual experience shows that the estimates placed upon a given property by different valuation experts have often varied so widely as to arouse serious doubt as to the fundamental soundness of the principle. The acceptance of this basis may also, unless great care is exercised by regulative bodies, result in giving to the holder of utility shares a double return: he may receive not merely a reasonable return upon his actual sacrifice in the form of dividends, but also an additional return through an increase in capital value. A final criticism of the method rests upon the wide fluctuation of cost figures from time to

time: a valuation as of January 1, 1915, during a period of low commodity prices, would compare strangely with the valuation of the same property, with no additions or betterments, as of January 1, 1920, a date which fell within the recent period of peak prices. This difficulty has been partially met, however, by the use of the "unit price," the average cost of materials and labor during a period of years being used instead of the price figure for a particular date. Yet even here difficulty arises, since the length of the period covered in computing the average is highly significant in determining results.

One other difficulty, or matter of dispute, relative to finding the cost-of-reproduction of railway properties has arisen in the selection of the type of such cost to be used. Railway management insists that, if the property has been maintained in such condition as to make it possible to operate with 100% efficiency, depreciation should not be deducted. Although this matter has not been finally determined by the courts, it seems probable that they will hold an old property incapable of rendering the same period of service to the public as a new one, thereby justifying depreciation. Nevertheless, the fact that the railway properties of the United States are in such condition as to average between 80 and 85% of cost-of-reproduction-new indicates that depreciation is an important item. Therefore, its deduction to arrive at a proper rate base will be bitterly contested by the carriers and defeat admitted only at the hands of the highest court.

NOTE: Because of the close relationship between the subject-matter of this chapter and the one following, references covering the field of both are combined on pages 499-500.

XXI

SECURITY REGULATION

Sound public policy concerning valuation. Need of authoritative findings. Watered stock: meaning and tests. Reasons for stock-watering. Conditions promoting stock-watering: market manipulation; the "construction company"; stock dividends and "rights"; reorganization. Morality of financial practices. Demand for the regulation of railway security issues. Control by the states. Movement toward federal regulation. Action by Congress. Gains of security regulation.

During the past 20 years commissions and courts have been forced to deal with the problem of valuation frequently and under widely varying conditions. Strange to say, however, as a result of those years of experience, no definite and explicit principles to govern the determination of the worth of a property can be set forth. Only in general terms have the pronouncements of commissions and courts been phrased. Yet a survey of the ruling decisions indicates that, as a working basis in the determination of capital value, administrative bodies and the courts use cost-of-reproduction-new-less-depreciation as a cornerstone. This figure seems to be modified often by a consideration of historical cost, however, and even of earning capacity to the extent that earnings reflect the efficiency of management or intelligence of location where several routes were available.

To say that such is the present fundamental basis of determining the value of public utility property is one thing; to contend that such a basis will be permanently accepted is another. Indeed, it appears that, as conditions become more certain and methods of regulation, as well as the principles upon which such regulation rests, become more definite, historical cost will gain increasing acceptance. Today, however, the more theoretical basis must be regarded as fundamental and in the determination of the figure to which the

paper worth ought measurably to correspond, this principle will serve for many years as a guide to commission and court alike. Yet the precise weight given it in fixing a final figure has not been indicated by a single body or individual and much less has any general agreement been secured. Indeed, agreement is unlikely to be reached at any time on such a matter.

NEED OF AUTHORITATIVE FINDINGS

The demand for the determination of the worth of railway properties has received impetus from two directions. Legislative bodies have been desirous of having a sum fixed upon which a reasonable return should be paid, as an aid in the determination of rates; without such figure it is difficult to chart a safe course between confiscation and extortion. The second purpose which a valuation of railway properties should serve, and one which was perhaps first to appear as a motivating factor, is the protection of the investor. For many successive decades railway securities afforded the American people their one great investment and speculative opportunity, but, because of the uncontrolled issuance of securities and the involved systems of accounting, it was difficult for the possessor of capital to know at a particular time the true status of the security, bond or stock, in which he was interested as an investor, or to be assured of its position even in the immediate future. In consequence of this complete absence of control, the deceits and frauds perpetrated by promoter and by corporate organization upon the investing public during more than a half-century of railway history were many and gross; indeed, the overcapitalization of certain railway properties became so notorious that the situation acquired political as well as economic significance. No small measure of public antagonism during the past 40 years has been the outgrowth of these very excesses.

WATERED STOCK: MEANING AND TESTS

The term "watered stock" has been used so widely in connection with the overcapitalization of the railways that perhaps it may be well to discuss the problem of overcapitalization in terms of watered stock. By this term is meant merely an excess of capitalization or paper obligations outstanding over the value of the property upon which that paper is based. This excess may result from a shrinkage in the value of the assets of the corporation through undermaintenance or retirements in excess of replacements, but normally it has been the consequence of an early issuance of stocks or bonds, or perhaps both, beyond the capacity of the property to give them financial support. Since cost-of-reproduction-new-less-depreciation has, in general, been accepted as fundamental, we might define overcapitalization, or watered stock, as an excess of outstanding securities over and above the present worth of the property upon the basis indicated. Other indexes of the presence of watered stock have been proposed, particularly the so-called "dividend test" and the "market test." Both of these, however, are unsound. In the railway field as in all others, dividends must ultimately be determined by earnings and it has already been shown that earning capacity is not a sound basis for value determination except in the competitive field. The market test is in turn equally valueless, because the market value of a security is, in the long run, determined by the earning capacity of the property underlying it. The only test of the presence of watered stock which is of fundamental worth, therefore, is the valuation test.

Before entering upon a discussion of certain facts incident to overcapitalization in the railway field, it will be helpful to comment briefly upon the conditions underlying the issuance of railway securities during the developmental period. Built as they were in the most populous and wealthiest sections of our country in response to a definite traffic need, early railway properties could be financed through the sale

of stock in the communities served. As the railway extended farther into the West and Southwest, however, covering stretches of territory not yet able to furnish economic support for operations, much less provide funds for their construction, it became impossible to finance such building except through the issuance of bonds. Indeed, so speculative was the character of many of these pioneer enterprises that it was not an uncommon practice to offer with each bond one or more shares of stock at a nominal price, sometimes even as a gift, in the hope that, through so "baiting the hook" with possible speculative gains, the sale of bonds could be more advantageously made.

REASONS FOR STOCK WATERING

Although it is impossible to classify completely and explicitly the various reasons lying back of stock-watering operations, or, to put it more fully, the issuance of excessive amounts of securities, certain reasons do stand out with sufficient clarity to justify statement. One of the earliest reasons underlying such excessive issuance of securities has already been mentioned—the need of "baiting the hook" sufficiently to interest the prospective purchaser of bonds. A second reason of importance in the railway field, as in the field of industrial operations, has been the desire of the promoter to capitalize for his own benefit any future growth in value of the property. To do this an amount of bonds would be issued sufficient to meet a major part of the cost of completing the project, the promoter receiving at a nominal price, or for "services rendered," a considerable issue of common stock upon which he hoped the prosperity of the project would enable him to realize at some future date. Yet another explanation of the issuance of abnormal amounts of securities can perhaps be summarized by the simple word "plunder." All too often in the history of American railways, security issues have been foisted upon a public which has been carefully kept in ignorance of under-

lying facts, with the result that certain insiders have been able to reap richly in a field in which they have sowed only deceit.

A still further reason for stock watering, but one applying only to bonds, appears in the greater immediate financial advantage to be gained through the sale, at a heavy discount, of a large issue of bonds bearing a low rate of interest rather than the issuance of bonds at par, carrying the market rate. To make this statement clear: suppose that a corporation is seeking additional funds and that the urgency of its immediate needs is such as to justify ignoring largely any future consequences. This corporation, assuming itself able to support an additional interest burden of $500,000, might issue $10,000,000 worth of bonds at 5%, or $20,000,000 at 2½%, in either case the annual burden being the same. But, because of the fact that at the end of the life of the bond the par value must be paid, the railway would be able to realize immediately a larger sum upon the $20,000,000 issue bearing half the market rate than upon the other. Such a policy is short-sighted and, if followed, will prove ruinous, but keen immediate necessity oftentimes compels a course of action which, from the long-time point of view, is unsound; then, too, those in control may be actuated by personal motives of such character as to make the future of slight concern.

Another factor operating in the railway field to promote stock watering is the desire of the corporation to disguise returns. In the industrial or commercial field the organization which is able to reap a rich harvest has no desire to tempt others to enter the field or to investigate their methods by advertising the unusual opportunity through the payment of abnormal dividends. In the railway business those corporations which are situated in a peculiarly favorable position are just as eager to conceal from the public and from regulative bodies a profit which exceeds that regarded as reasonable in the field. And, too, certain corporations have sought to forestall regulative activity by issuing an excessive

amount of securities, particularly bonds, upon which charges must be paid regularly if receivership is to be avoided. In this way they hope to justify the continuance of a level of rates which yields a high return when the true value of the property is considered.

OVERCAPITALIZATION AND MARKET MANIPULATION

The existence of certain conditions in the railway field has led, almost invariably, to excessive capitalization. Manipulation of the market by a group controlling a railway has often been accompanied by excess issues of securities. The odorous and notorious performance of that trio of financial freebooters—Gould, Fiske, and Drew—in their struggle with Vanderbilt for the control of the Erie, is a classic in manipulation and shows clearly how a railway property may be burdened heavily in after years as a result of such operations. A similar situation, in that the work was done by "insiders," is found in the overcapitalization of the Chicago and Alton while under the control of Harriman, a performance which so wrecked a fine property that it remains today but a battered hulk. The purpose of stock watering here alone distinguished it from the Erie situation: it was the investing public rather than a rival railway leader that was to be mulcted. Incidentally, the purpose was accomplished with equal thoroughness and success.

Another of the conditions most favorable to capital inflation is the operation, in connection with the building of a property, of the so-called "construction company." Such a company, directed by "insiders" who, acting in dual capacity, offer bids in the name of the construction company and as officials of the railway company vote the acceptance thereof, has succeeded in increasing greatly the capitalization of many railway properties. Significant among such operations has been the work of the Crédit Mobilier on the Union Pacific, which almost doubled the cost of the property, and of various companies which operated in con-

nection with the Southern Pacific, increasing tremendously the cost of that road.

OTHER CONDITIONS PROMOTING OVERCAPITALIZATION

The declaration of a stock dividend is still another practice which often results in overcapitalization. This stock dividend may be declared by the corporation during a period of poor business in lieu of a cash dividend. On the other hand, profitable operations through a series of years may have resulted in an accumulation of a surplus which the management desires to distribute. The distribution of this surplus upon the basis of stock issues outstanding at the particular time might necessitate a sharp increase in the dividend rate. To avoid this and thus escape public notice and condemnation, the railway corporation will issue sufficient stock, prior to "cutting the melon," to make distribution possible without in anywise exciting suspicion on the part of the casual observer. Closely akin to the declaration of a stock dividend is the increase of capitalization attended by the exercise of "rights." If the right to subscribe for additional stock is given to the present stockholder at a price below par, an increased gap between capitalization and worth is inevitable. However, even when the right to subscribe is given at par or above par an objectionable dilution of the old stockholders' equity will result if the subscription figure is materially below the market quotation of the stock.

The existence of a considerable sum of unpaid current liabilities presents another situation which strongly tempts the corporation to seek a way out of its difficulty through an increase in capitalization. Unable to meet such current demands from earnings, many corporations have weakly yielded to pressure and have paid off such liabilities with sums secured from the sale of stock or even of bonds. Quite similar in nature to this objectionable policy is another—that of capitalizing replacements. This may result innocently—from a failure to differentiate properly between

replacements and betterments, or it may be the consequence of a desire to exploit the property. This tendency to confuse capital and replacement costs has been particularly noticeable in the case of financially weak lines and of roads expending considerable sums upon relocation projects, important bridge replacements, or betterments.

The change of financial plan incident to reorganization has, almost without exception, resulted in an increase in the total of outstanding securities. Increased amounts of bonds with a contingent claim upon earnings replace bonds with a fixed claim. Preferred stock, even common, is also issued, generally in amounts much in excess of the par value of the bonds retired, and given to the holders of those junior liens whose claims compel a measure of consideration, yet who find it essential to make certain sacrifices. It is this situation that has given rise to the issue of a considerable portion of the outstanding income bonds and also to no small amount of preferred stock, particularly that with cumulative claims upon earnings. Yet another fruitful source of railway overcapitalization has been the consolidation of properties. It is assumed that such consolidation will result in increased earnings. In an effort to capitalize such earnings at the time of organization, securities are issued in amounts beyond the ability of the corporation to support them upon the basis of previous aggregate earnings. It is hoped that additional earnings will provide for the difference. If expectations fail to materialize, the consolidated property finds itself, in the normal course of events, burdened excessively for perhaps many years in the future.

MORALITY OF STOCK WATERING

In all public discussions of overcapitalization or stock watering in the railway field, it is assumed that such a practice is and always has been essentially wrong. In endeavoring to arrive at a reasonable conclusion relative to the morality of stock watering, however, it is certainly necessary to

distinguish between the overcapitalization of pioneer properties during the years of rapid railway development and of speculative building, and the same practice at the present time in connection with developed properties. In early years, while the railway was regarded as a competitive enterprise, such overcapitalization as took place can justly be termed immoral to no greater degree than can excess capitalization of an industrial corporation today be so regarded, unless fraudulent practices can be shown to have accompanied such excessive issues. Then, too, during this earlier period, railway enterprises were of a highly speculative character and the issuance of amounts of securities greatly in excess of the actual cost of the property can be explained and, in part, justified upon the basis of the heavy risks accepted. In brief, it seems that whatever may be the burden resting upon an individual railway, or upon the railways of the country as a whole, because of excess capitalization, *honestly issued,* during early years, no stigma should attach to the practice. It is unfortunate, of course, —but such added public burden is a part of the price which the public must pay for progress. It is in part the price, too, which the present generation must pay for the long adherence to an erroneous conception of the essential nature of the railway business, and for our dilatory action, once the policy of *laissez faire* proved to be a mistaken one.

However, such a conclusion cannot properly be drawn with respect to the great majority of the instances of stock watering during comparatively late years, if one believes at all in the maintenance of a reasonable correspondence between capitalization and worth. Indeed, even though one did not believe in such a correspondence, he could not condone the practices which have appeared in connection with the conspicuous recent instances of excessive capitalization. Practically all of these outstanding illustrations of overcapitalization have been intimately connected with crooked or vicious management as, for example, the wrecking of the Rock Island, the collapse of the New Haven, and the

plundering of the Frisco. For present and future, therefore, it would seem that no possible justification can be urged by corporate management for burdening a property with excess capitalization, either bonds or stock.

DEMAND FOR SECURITY REGULATION

Indulgence in objectionable capitalization practices, associated as they have often been with rotten management, has led to an insistent demand upon the part of the public for the regulation of railway security issues. Such regulation is justified in the interest of the investor. Though a system of uniform accounting has been of great assistance to the investor in ascertaining the policies and status of a property, it has done little to assure him of protection against changes in capitalization which will greatly lessen his equity, perhaps imperil it. Such a situation is certainly inimical, both to the attraction of additional investment interest and to the retention of old. From the standpoint of the patron, overcapitalization is likewise objectionable—to even a greater degree, perhaps, than from the investors' standpoint. The pressure of necessity, resulting from a heavy burden of fixed charges, or the desire to maintain dividend payments upon stock issues, will often result, even under a system of regulation, in the adoption by the carrier of the shortsighted policy which calls for the heaviest possible exactions in rates from, and the rendition of minimum service to, the shipper.

The patron is more likely to suffer from overcapitalization, however, because of its influence upon service. The need for funds to meet interest and dividend payments will almost invariably result in inadequate maintenance. Furthermore, such money needs will make the improvement of service slow and the expansion of the property to meet the growing needs of the community equally tardy. Concrete instances of the influence of an over-heavy capitalization upon service are to be found in the history of the Chicago

and Alton, of the New Haven, of the Missouri Pacific and, still more recently, of the Chicago, Milwaukee, and St. Paul.

CONTROL BY THE STATES

The demand for the regulation of security issues was first heeded by certain of the states. Of these New York, Massachusetts, and Texas have had experience of some years' duration and have done particularly interesting work. In general, the regulation of railway security issues has concerned itself with three matters. It has been required that the purpose of issue shall be clearly stated and that a strict accounting shall be made for all sums received and spent in connection with that issue. Another feature has been the control of the price of sale: regulative acts usually decree that stocks shall not be sold below par, though they allow a certain maximum discount upon bonds. The third feature of the typical regulatory act is a clear prohibition upon the issuance of securities for certain named purposes, such as replacements, franchises, leases, and so forth. Perhaps little criticism can be made of these regulations except that one which prescribes a definite price of sale; its effect has often been to handicap unnecessarily a corporation in meeting a particular situation. Indeed, in connection with the reorganization of the New Haven, the Massachusetts Commission, though denying the New Haven the right to issue certain securities because of legal restrictions which hedged that body about, confessed its willingness to do so, were there no intervening legal barriers: the desirability from a public point of view of the issue was clearly admitted. Then, too, nothing could be better calculated to increase the bond ratio than a "sale at par" provision covering the flotation of stock during periods of weak railway credit.

MOVEMENT TOWARD FEDERAL REGULATION

Dissatisfaction with state control as it existed, together with the inability of state control alone to meet all problems,

led to the demand for federal regulation of security issues. This dissatisfaction was based upon the fact that state regulations often conflicted, that many states failed entirely to regulate, and that others regulated well rather than wisely. So insistent became this demand that, in 1908, the Republican party platform pledged that organization to federal action. Instead of fulfilling this pledge, however, Congress provided for a commission to investigate the entire problem of the control of security issues. At the head of this commission was placed President Hadley, of Yale University. In its report to Congress, this body contended that capitalization in no way influences rates and services and that regulation of the price of issuance was of no advantage. It recommended, however, that a physical valuation of the railways be undertaken and also suggested the abolition of par value of all stocks in the railway field.

Congress, acting on the basis of this report, refused to enact regulative legislation. It did, however, in the Valuation Act of 1913, make provision for a determination of the true value of the railway properties of the United States; upon that value must rest not only the fixation of rates but also any intelligent regulation of security issues and all efforts to secure and preserve a reasonable correspondence between capitalization and property worth. The report of this commission, however, was not given great weight by the public at large and particularly not by those with a deep interest in the solution of the railway problem: the conclusion that there is no relation between capitalization and rates or service was clearly grounded upon a confidence in that time-honored policy of *laissez-faire* which actual experience in the railway field proved undeserved long since. Warned by the exploitation of certain railway properties during recent years, it is not strange that practically every proposed solution of the railway problem presented to Congress in 1919 embodied, as one of its main provisions, the complete regulation of security issues by some federal agency. This unanimity of judgment was further evidenced

by the inclusion, almost without dissent, of a section in the Transportation Act of 1920 which gives to the Interstate Commerce Commission a power that had been suggested almost 50 years earlier by the Windom Committee and again a decade later by the Cullom Committee, but which had been refused or ignored through many years.

GAINS OF SECURITY REGULATION

For good or for ill, the regulation of railway security issues in the United States is now an accomplished fact and, it may be added, in the four years' administration of this portion of the Act, the decisions of the Interstate Commerce Commission have been so reasonable and constructive that both the railways and the public confess the fairness and the desirability of control. Whether voluntary or compulsory federal incorporation is destined to follow for the railways is a matter for future determination: the decision rests primarily, it would seem, upon the success of security control under the terms of the present law. Certainly intelligent regulation of railway security issues should benefit materially every party at interest. Through the reasonable protection of the investor a broader and steadier market for railway issues will develop and be maintained, and this, in turn, will aid the carrier to meet the needs of the shipping public more adequately and more quickly. Security regulation, coupled with the valuation of carrier properties which is now nearing completion, seems to offer nothing but clear gain. The only loser will be the wolf in sheep's clothing—the criminal who, wrapped about with a cloak of respectability and styling himself "financier," has robbed rich and poor impartially as he operated carefully within the law.

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Some particularly interesting material dealing with the regulation of railway security issues will be found in the records of certain state commissions—Massachusetts, New York, Wisconsin, Texas, California, and Washington being noteworthy; also in the *Interstate Commerce Commission Reports* for the past four years.

XXII

RAILWAY REVENUES, EXPENSES, AND DIVIDENDS

Sources of railway revenue. Variations as to source among individual roads. Non-operating income: nature, importance, and sources. Railway operating expenses. Variations in proportion of operating revenues expended. Deductions from gross income. Individual and territorial differences in deductions. Disposition of net income. Movement of total revenues and expenses. Distribution of the railway dollar. The operating ratio: importance usually given it and an evaluation. Interest on railway bonds. Dividends on stock. Market weakness of railway securities. Needed changes to effect credit rehabilitation. Recapitulation of financial results in 1922, Class I railways.

THE financial importance of the railway business is evidenced by the enormous investment in plants devoted to public service. It is also shown by the large sums of money received and disbursed annually by those carriers. These sums were relatively great in years past, but they have increased in an almost phenomenal manner during the past decade, due both to a tremendous gain in traffic and to the sharp upward movement of the general rate level since 1917. In the discussion of railway revenues and expenditures following, attention is first directed toward the sources and amounts of revenue, then to the channels through which outlays flow. Finally, are indicated the distribution of those sums remaining to the railway after operating costs have been met and the effect of that distribution upon the market position of railway securities.

SOURCES OF RAILWAY REVENUE

Railway revenues are derived primarily from carrier operations—from the movement of traffic and from activities immediately incident thereto. The classification of operating revenues prescribed by the Interstate Commerce

TABLE 24

OPERATING REVENUES—CLASS I RAILWAYS

Source of Revenue	1922		1917		1912	
	Amount	Per-centage of Total	Amount	Per-centage of Total	Amount	Per-centage of Total
Freight	$3,992,442,459	71.89	$2,819,965,215	70.25	$1,897,692,838	69.21
Passenger	1,074,108,060	19.34	825,211,593	20.56	639,818,627	23.33
Excess baggage	8,407,251	.15	6,234,382	.15	7,318,471	.26
Sleeping car	2,567,865	.05	2,848,710	.07	644,780	.02
Parlor and chair car	1,304,844	.02	1,508,627	.04		
Mail	90,963,715	1.64	58,775,765	1.46	49,529,279	1.81
Express	143,265,115	2.56	106,914,603	2.66	71,773,138	2.61
Other passenger train	11,327,762	.20	7,120,499	.18	5,139,823	.18
Milk	32,647,401	.59	16,759,174	.42	8,096,249	.28
Switching	54,970,539	.93	41,421,149	1.03	27,889,410	1.01
All other rail line	12,713,456	.23	9,008,435	.23	8,071,617	.27
Total rail-line transportation revenue	5,424,718,467	97.60	3,895,768,152	97.05	2,715,974,232	98.98
Total water-line	15,721,636	.28	14,968,060	.37	*	.....
Total incidental	110,380,455	1.98	100,583,698	2.51	25,956,013	.94
Total joint-facility	8,272,150	.14	2,822,838	.07	2,412,032	.08
Total operating revenue	$5,559,092,708	100.00	$4,014,142,748	100.00	$2,744,342,277	100.00

* Included with rail-line revenues. No differentiation made.

Commission for steam railways divides these operating revenues into four groups of which the first and most important is rail-line transportation revenue, which constitutes approximately 97½% of the total operating revenue. The second grouping, which comprises all water-line transportation revenue accounts, is quite unimportant, yielding little more than ¼%. From the third group, incidental operating revenue, is derived slightly less than 2% of gross operating revenue. Joint-facility operating revenue constitutes the fourth and a negligible group. A statement of operating revenues for Class I carriers for the years ending December 31, 1922 and 1917, also June 30, 1912, appears in Table 24 on the following page.

REVENUE VARIATIONS AMONG INDIVIDUAL ROADS

A consolidated revenue statement for Class I railways of the United States, such as that just given, fails, however, to reflect the sometimes wide variations in particular types of traffic which exist among different sections of the country and among individual roads. Among Eastern, Southern, and Western districts the proportion of the total operating revenue derived from freight varied but fractionally from the 1923 percentage of 73 for all Class I roads, and the same was true of the proportion which passenger revenue contributed to the total, 18% in 1923. Incidental revenues varied more widely in proportion than either of the two major services. The great differences are found among the more specialized areas and among the individual roads, the data in Table 25 indicating the wide variations in the proportion of freight and passenger revenues to total operating revenue for selected properties in 1923.

NON-OPERATING INCOME

In addition, however, to the large revenues received from operation, the railways of the United States have an im-

portant non-operating income. This non-operating income accrues largely from the ownership of the securities of other railways and of non-carrier properties. Other important sources of non-operating income are rent of equipment to other lines and payments made by one railway to another for the joint use of certain facilities. That a better conception of the nature and magnitude of this general source of revenue may be had, a statement is given, in Table 26, on the following page, of non-operating revenues of Class I railways for the years 1912, 1917, and 1922. Of the items listed in that table, however, dividend income is deceptively large, since it represents important duplications. The table gives for each year the total figures for all roads; thus dividends received upon stock owned by one road which are paid in turn to another, will appear twice. No net dividend

TABLE 25

AMOUNTS RECEIVED BY SELECTED ROADS FROM FREIGHT AND FROM PASSENGER REVENUES AND TOTAL OPERATING REVENUES—1923 [1]

Name of Railway	Freight	Passenger	Total (Inc. Misc.)
Detroit, Toledo and Ironton	$ 10,103,129	$ 117,684	$ 10,417,412
Bessemer and Lake Erie	19,629,484	347,217	20,367,251
Duluth, Missabe and Northern	20,083,454	214,141	22,253,554
Virginian	18,093,633	957,781	20,328,348
St. Louis Southwestern	17,838,664	2,013,975	29,842,524
Norfolk and Western	81,320,794	10,194,497	95,494,687
Lehigh Valley	63,122,821	7,406,346	75,935,153
Baltimore and Ohio	208,587,996	30,752,791	255,594,435
Northern Pacific	77,610,570	15,438,784	102,002,060
Union Pacific	88,728,990	18,205,803	117,479,916
Illinois Central	127,081,546	27,042,401	165,626,982
Atchison, Topeka and Santa Fe	139,655,477	46,445,181	203,311,792
Pennsylvania	502,698,606	155,516,003	721,397,408
New York Central	273,365,155	98,585,821	420,593,628
Boston and Maine	53,296,874	23,022,539	86,193,418
Richmond, Fredericksburg and Potomac	5,873,373	4,243,153	12,077,813
New York, New Haven and Hartford	67,186,374	51,360,209	133,940,586
West Jersey and Seashore	5,015,380	8,059,190	14,142,520
Atlantic City	1,511,029	3,144,952	4,850,619

[1] *Railway Age*, vol. 76, no. 8, February 23, 1924.

TABLE 26

NON-OPERATING INCOME—CLASS I RAILWAYS

Item	1922	1917	1912
Hire of freight cars—Credit balance Rent from locomotives Rent from other equipment	$ 50,512,020	$ 58,806,055	$ 4,824,430
Joint-facility rent income	32,386,400	24,827,433	8,864,864
Income from lease of road	6,010,518	4,172,339	500.094
Miscellaneous rent income	15,763,857	8,957,683	4,106,792
Miscellaneous non-operating property	4,880,328	3,131,149	3,829,720
Separately owned property—profit	1,431,933	2,050,342	1,455,685
Dividend income	133,559,828	122,560,524	60,253,419
Income from funded securities	64,040,131	44,172,934	8,128,845
Unfunded securities and accounts	28,559,001	24,672,263	12,252,338
Sinking and other reserve funds	3,961,540	2,907,967	.....
Release of premium on funded debt	110,440	75,394	13,166
Contributions from other companies	5,864,312	4,752,738	.....
Miscellaneous income	2,218,755	1,630,741	1,492,105
Total	$349,299,063	$302,717,562	$105,721,458

income figure is made available though, in the interests of accuracy, such a figure should be given.

IMPORTANCE AND SOURCES OF NON-OPERATING INCOME

The proportion which non-operating income forms of total operating revenues varies among the different districts more widely than do the important sources of operating revenue. In 1921 non-operating income constituted 8.10% of total operating revenues for the United States; for Southern territory the percentage was 4.51, for Eastern 8.46, and for Western 9.15; the amounts being in each case $39,557,655, $208,145,307, and $199,198,885. That non-operating income is highly important in many instances is clearly shown by its comparison for particular roads with operating income—the amount remaining from operating revenues after operating expenses, tax accruals, and certain minor items have been added and deducted. For 1921, an unusually lean operating year, non-operating income constituted almost 40% of gross. In Table 27 are given figures for cer-

tain roads which contributed generously toward this large proportion, together with the most important source of such non-operating income.

TABLE 27

OPERATING, NON-OPERATING, AND GROSS INCOME OF VARIOUS RAILWAYS WITH MOST IMPORTANT ITEM OF NON-OPERATING INCOME NOTED—1921

Name of Road	Most Important Item of Non-Operating Income	Non-Operating Income	Operating Income	Gross Income
Grand Trunk Western.. Contributions from Other Roads		4,957,811	728,859*	4,228,952
P. C. C. & St. L.	Miscellaneous	5,330,343	289,509	5,619,852
Western Pacific	Lease of Road	3,923,940	481,024	4,404,964
Northern Pacific	Dividends	30,415,046	7,875,176	38,290,224
Erie	Dividends	15,745,693	4,732,914	20,478,607
Great Northern	Dividends	33,506,236	12,480,988	45,987,224
Central of New Jersey	Dividends	21,652,817	6,206,015	27,858,832
New Orleans, Tex. and Mex.	Funded Securities	1,441,182	678,468	2,119,650
New York, New Haven and Hartford	Dividends	9,032,223	5,515,941	14,546,164
Southern Pacific	Dividends	37,976,225	36,044,323	74,020,548
Atlantic Coast Line	Dividends	4,827,989	5,580,285	10,408,274
Pennsylvania Railroad	Dividends	43,791,276	48,636,519	92,427,795
Seaboard Air Line	Lease of Road	3,162,178	3,922,061	7,084,239
Virginian	Lease of Road	3,114,893	4,575,084	7,689,977
Union Pacific	Funded Securities	17,009,613	30,768,189	47,777,802
New York Central	Dividends	26,152,238	55,036,250	81,188,488

* Debit (Loss).

RAILWAY COSTS

The outlays of American railways are directed along two lines: expenses incident to the conduct of the transportation service, and deductions to cover non-operating and fixed charges. Just as revenues are entered by the railways according to classifications prescribed by the Interstate Commerce Commission, so expenses are grouped. The nature of each of various prescribed groups of operating expenses has been explained in a previous chapter, therefore there are given in Table 28 on page 507, without explanation, for 1912, 1917, and 1922 the sums expended by Class I roads for various purposes and the proportion which the outlay for each group constituted of total operating expenses.

From the percentages given for these years, it is evident

Table 28

Operating Expenses, Class I Railways

Item	1922	Per-centage	1917	Per-centage	1912	Per-centage
Maintenance of Way and Structure	$ 728,663,534	16.51	$ 442,109,862	15.63	$ 348,470,704	18.35
Maintenance of Equipment	1,252,517,250	28.37	685,428,913	24.22	436,995,458	23.02
Traffic	86,506,907	1.96	64,985,070	2.30	59,047,064	3.11
Transportation Rail Line	2,140,149,596	48.48	1,506,544,964	53.25	984,852,159	51.87
Transportation Water Line	9,614,227	.22	9,443,915	.33		
Miscellaneous	47,653,795	1.08	33,437,644	1.18	.....	.....
General	156,705,481	3.55	95,933,290	3.39	69,297,080	3.65
Transportation for Investment—Credit	7,288,456	.17	8,558,535	.30	.....	.....
Total Operating Expenses	$4,414,522,334	100.00	$2,829,325,123	100.00	$1,898,662,465	100.00
Operating Ratio		79.41		70.48		69.19

that, though each item constitutes a relatively constant proportion of total operating expenses, there are, nevertheless, variations in particular groups of expenses. The explanations of such differences, however, are too numerous to receive discussion here—volume of traffic, financial conditions, strikes, even weather, all playing a part.

Greater than in the case of revenue derived from different types of traffic in the three districts, are the variations in the proportion which operating expenses bear to operating revenue. In 1922 the Class I railways spent 79.41% of their total operating revenues rendering carrier service; in that same year the large lines in the Eastern district expended 81.85%, in the Southern 74.43%, and in the Western but 77.38%. This variation among districts is notable in other years as well: in 1920 the gap was yet wider, the percentages being 99.37, 99.44, and 89.16, respectively. Still more striking differences are to be found among individual roads, the ratio of operating expenses to operating revenues for 1923 being as high as 105-110% for a few unfortunate lines and as low, on the other hand, as 65-70% for the more happily situated and more efficiently operated properties. The percentage which was characteristic of a major portion of the Class I mileage for that year, however, lay between 75 and 80.

To arrive at the railway's net income it is necessary to deduct certain items from the sum of operating and non-operating income, or gross, as it is termed. The most important of these, as shown by the table given on page 509, is interest on funded debt; rent for leased roads constitutes the second most important item, this "use cost" being approximately one-third the amount of the interest charges. Incidentally, the striking increase in the outlay for lease of lines shows the extent to which the lease has been employed during late years to effect the consolidation of properties. Other important deductions are made to cover joint-facility rents and the rental cost of equipment used but not owned. Of the latter, hire of freight and passenger cars are the im-

portant items, a significant portion of this outlay representing payments to private car lines. The total deductions made from gross income for selected years, together with the amount of the more important items, appear in Table 29.

TABLE 29

DEDUCTIONS FROM GROSS INCOME—CLASS I RAILWAYS—IMPORTANT SUB-HEADINGS AND TOTALS

Account	1922	1917	1912
Hire of freight-cars—debit balance	$ 77,785,533	$ 53,552,108	$28,017,914
Rent for passenger train cars	17,587,971	12,790,170	
Joint-facility rents	54,728,699	42,957,003	31,991,502
Rents for leased roads	144,604,531	132,082,177	129,046,148
Interest on funded debt	457,872,006	403,305,438	359,881,461
Interest on unfunded debt	24,469,069	15,704,857	16,735,942
Total (Including items not listed)	$820,418,262	$694,052,603	$587,178,578

Deductions from gross income vary widely among individual properties, due largely to differences in financial structure. Heavily bonded properties, or properties which operate a considerable mileage of leased lines, must set aside large sums annually to meet the resulting obligations. On the other hand, properties owned almost wholly by the operating company, and but lightly burdened with funded debt, find it necessary to deduct a relatively small sum from gross income to arrive at net. And it is net income which is of peculiar concern to management: that is the sum which is available for distribution at will. Not only do the total deductions from gross income vary among individual roads, however, but the proportions which individual items form of the total also differ widely. This variation is particularly marked among roads with respect to the items of hire of freight-cars—debit balance, rent for leased roads, and interest on unfunded debt. Individual items vary greatly among the major territories, too, and there is a wide difference among them in the percentage of total operating income which total deductions form; in 1922 this percentage for Southern territory was about 72, for Western 97, and for Eastern 110. Had it not been for large non-operating in-

comes in the two districts last named, the situation of the carriers operating therein would have been precarious.

DISPOSITION OF NET INCOME

With various expenses met and deductions made, railway management is free to distribute the remainder, termed net income, in whatever manner it sees fit. Conservative policy often dictates the retention by the enterprise of an important part of this net income, but the claims of stockholders for a return upon their holdings cannot be long ignored when adequate funds are available. Disposition of net income for Class I railways of the United States for different years is indicated in Table 30, below.

TABLE 30

DISPOSITION OF NET INCOME—CLASS I CARRIERS

Account	1922	1917	1912
Income applied to sinking and other reserve funds	$ 9,759,485	$ 12,122,185	$ 5,309,605
Dividend appropriations of income	176,858,099	220,822,373	244,184,977
Stock discount extinguished through income	.....	.....	.....
Miscellaneous appropriations of income	9,729,684	15,382,475	.....
Income appropriated for investment in physical property	6,397,024	47,242,469	36,894,910
Total appropriations of income	$202,744,292	$295,569,502	$286,389,492
Income balance transferred to profit and loss	168,512,041	297,461,104	114,234,701

The use of railway net income measures with considerable accuracy the character of the management: liberal appropriations for physical property and to surplus always indicate a conservatism which promises well both for the investor, present and prospective, and for that portion of the public dependent upon the particular carrier for service, while a contrary policy bodes ill for the future.

MOVEMENT OF TOTAL REVENUE AND EXPENSES

The movement of railway revenues and expenses in total and in per mile of line for the United States has long been

distinctly upward, though a study of data following indicates that expenses have risen more rapidly than have revenues: the former increased from 1905 to 1923 by approximately 305%, the latter by only 205%. This shift is clearly shown by the ratio which operating expenses have borne, year by year, to operating revenue, that percentage rising from 60-70 prior to 1913, to as high as 94 in 1920. It is probable that the ratio will stabilize near 75%. The movement of operating revenues and expenses since 1905 for the railways of the United States, aggregate and per mile of line, also of the operating ratio, is shown in Table 31.

The much more rapid increase of expenses than of revenues is due to various factors, most important of which is the increased cost of labor and material. A second im-

TABLE 31

MOVEMENT OF OPERATING REVENUES AND EXPENSES—RAILWAYS OF THE UNITED STATES—1905-1923

YEAR	TOTAL		RATIO	PER MILE OF ROAD	
	Operating Revenues	Operating Expense		Operating Revenue	Operating Expense
1923*	$6,356,890,737	$5,620,401,722	77.77	$26,974	$20,936
1922†	5,559,092,708	4,414,522,334	79.41	23,657	18,786
1921†	5,516,556,455	4,562,668,302	82.71	23,533	19,464
1920†	6,178,438,459	5,827,591,146	94.38	26,327	24,846
1919†	5,143,589,998	4,398,408,414	85.51	22,022	18,732
1918†	4,880,953,470	3,982,068,197	81.35	20,872	16,980
1917	4,178,784,652	2,956,770,809	70.44	17,234	12,140
1916	3,691,065,217	2,426,250,521	65.73	14,344	9,429
1915	2,956,193,202	2,088,682,956	70.66	11,827	8,341
1914‡	3,047,019,908	2,200,313,159	72.22	12,387	8,944
1913‡	3,125,135,798	2,169,968,924	69.44	12,859	8,929
1912	2,842,695,382	1,972,415,776	69.31	11,849	8,212
1911	2,789,761,669	1,915,054,005	68.59	11,833	8,116
1910	2,750,667,538	1,822,630,433	66.29	11,553	7,658
1909	2,418,677,538	1,599,443,410	66.16	10,356	6,851
1908	2,393,805,989	1,669,547,846	69.75	10,491	7,320
1907	2,580,105,578	1,748,515,814	67.53	11,383	7,687
1906	2,325,765,167	1,536,877,271	66.08	10,460	6,922
1905	2,082,492,406	1,390,602,152	66.78	9,598	6,489

* Class I and large switching and terminal companies.
† Class I only.
‡ Class I and Class II only.

portant factor is that certain railways—in fact, a considerable mileage in the more highly developed sections of the United States—have seemed to be operating upon a basis of increasing instead of decreasing cost for some years. Indeed, had it not been for tremendous advances in the efficiency of conducting the business of railway transportation, particularly with respect to more economical management and to the heavier loading of both trains and cars, the gain shown by expenses upon revenues would have been even more marked. To give an idea of the increase in the relative cost to the railways during recent years of the various groups of expense items, the data in Table 32 are presented.

TABLE 32

DISTRIBUTION OF RAILWAY OPERATING REVENUES EXPRESSED IN CENTS PER DOLLAR—CLASS I CARRIERS [1]

Item	1912*	1914*	1916	1918	1920	1922
Labor (Salaries and Wages)	40.1	41.0	38.0	49.8	55.4	44.4
Fuel	8.0	7.8	7.0	10.3	10.9	9.3
Material	16.8	18.2	15.3	16.8	22.1	20.7
Loss and Damage, injuries to persons and insurance	2.4	2.7	2.0	2.3	3.6	2.0
Depreciation and Retirements	2.5	3.0	3.3	2.4	2.3	3.0
Taxes	3.9	4.5	4.4	4.6	4.4	5.4
Hire of Equipment, Joint-Facility Net Rentals	1.0	1.0	1.1	.7	1.0	1.5
Total Expenses and Taxes	74.7	78.2	71.1	86.9	99.7	86.3
Net Railway Operating Profit	25.3	21.8	28.9	13.1	.3	13.7

* Fiscal year ending June 30.

IMPORTANCE ASSIGNED THE OPERATING RATIO

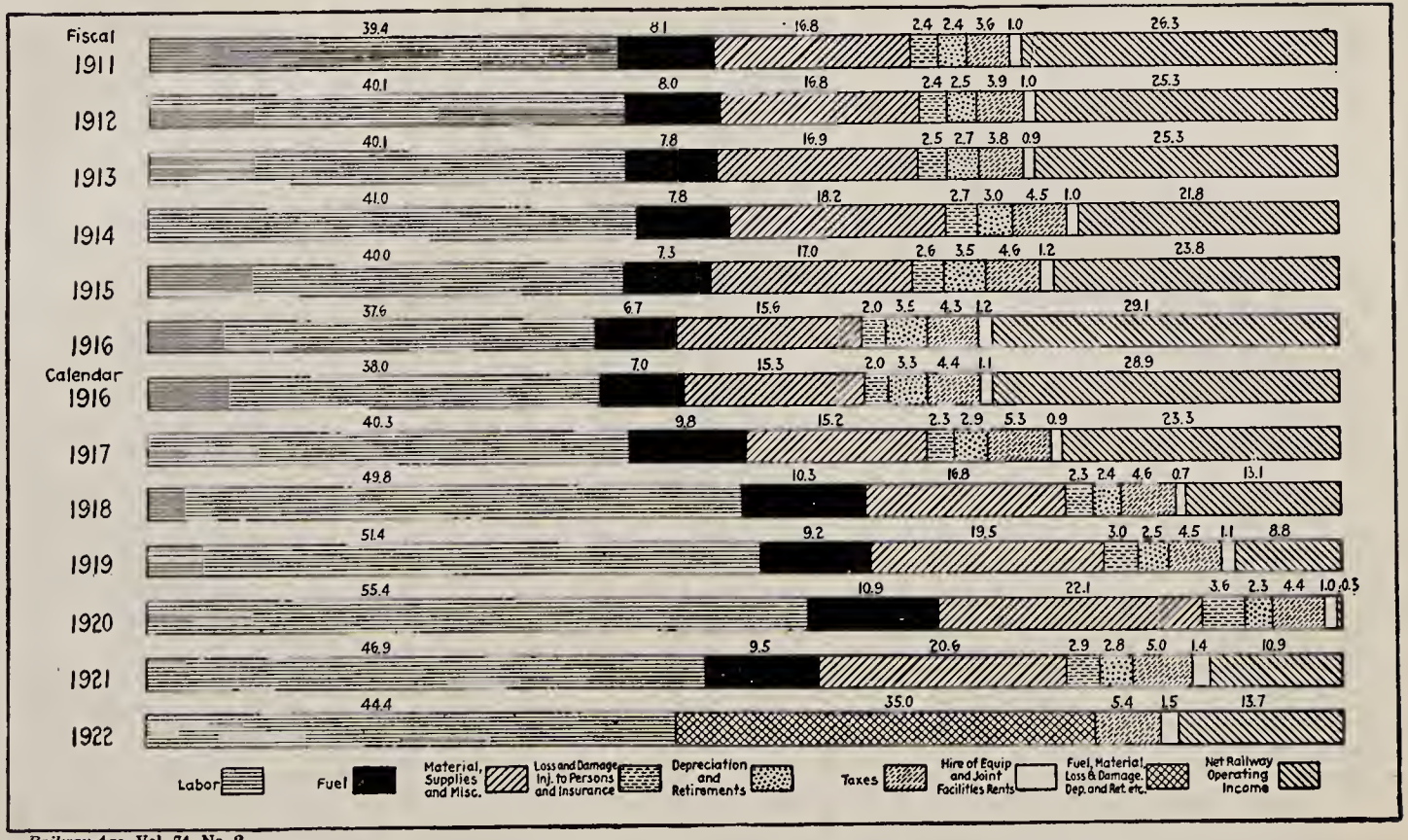
In the discussion preceding, attention has been called to the importance, as a measure of the efficiency of railway operations, of the relationship which operating expenses bear to operating revenues. This relationship, expressed in the form of a percentage, is known as the operating ratio, and, because of the importance attached to it by students of the railway as an index both of efficiency of operation and of the desirability of railway securities from the in-

[1] Bureau of Railway Economics.

vestor's point of view, a critical analysis of its worth may well be made. Assuredly, an index of efficiency of operation and of financial soundness would possess high value, both to officials charged with the management of the property and to holders of securities, be they actual or prospective. As such an index has the operating ratio long been held; to it has been accorded a deference due only to things infallible. This ratio, as computed for various operating divisions and for the property as a whole, has been used by railway officials to measure the relative efficiency of the administration of various portions of the property during a particular period, and of the property as a whole for one period as compared with another; investors have ordered their buying and selling of railway securities upon its downward or upward movement. Yet a careful analysis of the situation makes necessary the acceptance of this ratio even by operating officials with certain reservations, and the investor seems justified in placing slight confidence in a figure which expresses a mere mathematical relationship.

EVALUATION OF OPERATING RATIO

An evaluation of the operating ratio as an index shows that three distinct limitations must be recognized. The first and perhaps the most important of these develops from variations in standards of maintenance. Maintenance expenditures normally constitute about two-fifths of total operating expenses, but for a period of time it is possible to deliberately skimp maintenance without depreciation of the physical property being either apparent to the casual investigator or reflected in the service rendered. Indeed, it is difficult for those closely associated with the property to follow an absolutely constant maintenance policy from year to year, even though such a policy might be desired. So, though operating officials will be cognizant of any definite change in the maintenance policy and measurably certain of the actual conditions of the property at a given time,



Railway Age, Vol. 74, No. 2.

Figure 30: The distribution of railway operating revenues expressed in cents per dollar of gross revenue

those not within the inner circle not only fail to discern slight variations, but often fail to discover that a property is being "skinned" until it has depreciated to a point of danger. Because of the maintenance factor, therefore, even the operating official, familiar with the maintenance policy of a property, and knowing of definite changes in it from time to time, must accept the operating ratio with reservations; the investor, acquainted neither with the policy nor the physical property, can place but little reliance upon it.

A second important limitation in the use of the operating ratio as an index of financial soundness lies in the variations among roads in net returns from outside investments. One road, with a high operating ratio, may enjoy a large income from outside investments, thus making the property superior, from an investment point of view, to another which has a lower operating ratio but enjoys practically no income from other sources. Yet a third limitation arises from wide variations in the capitalization burden borne by various properties. If two properties be assumed to have relatively the same revenue from operations per mile of line and be assumed also to have relatively equal operating ratios, it is clear that, if one property has a low capitalization as compared with the other, there is a proportionate difference in the investment soundness of the two. Particularly is this true if a large portion of this higher capitalization is in the form of bonds, imposing a heavy burden of fixed charges.

TREND OF OPERATING RATIO

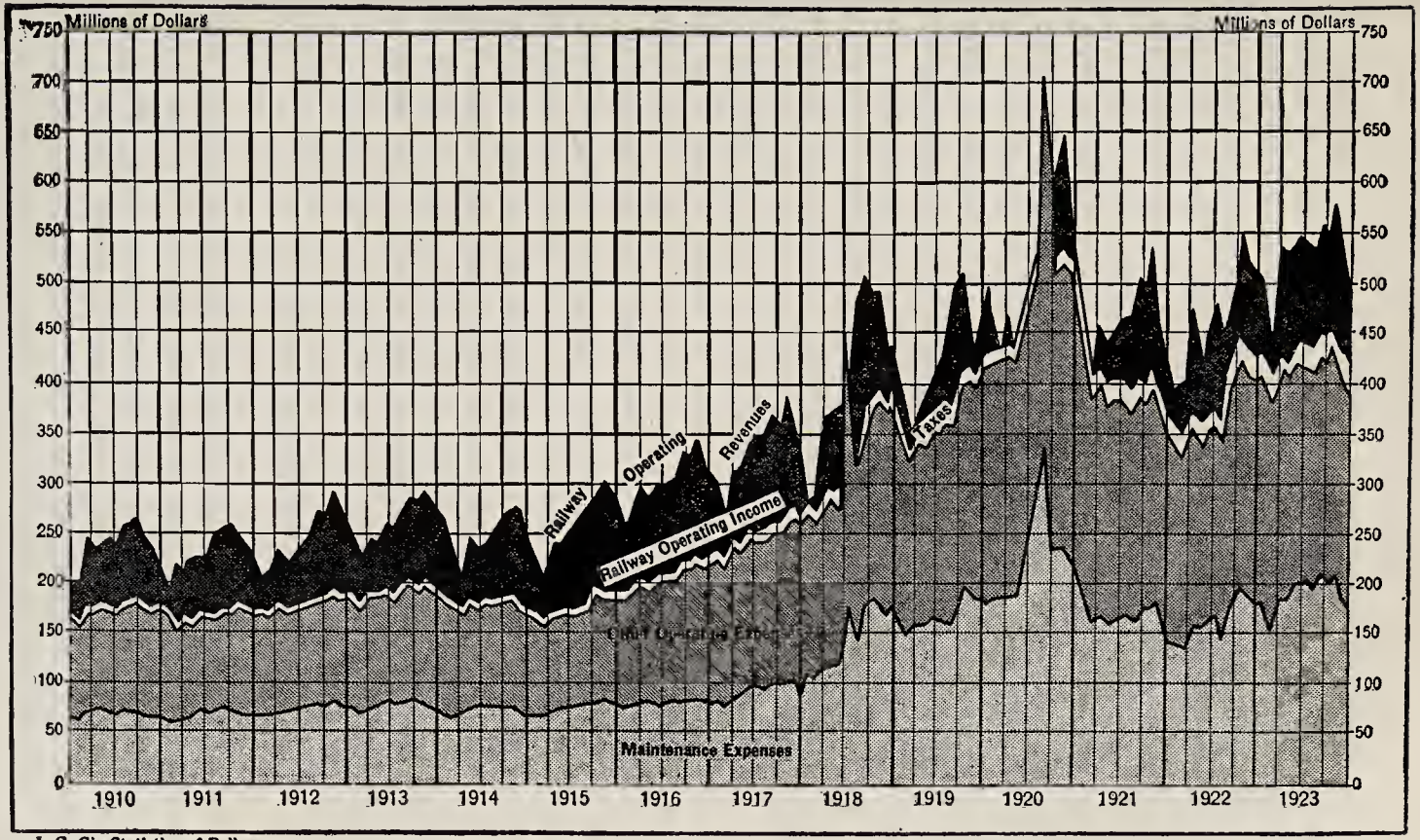
In brief, it may be said of the operating ratio that, although it possesses some value as an index of efficiency and of financial situation, its sole worth is to those closely associated with the property. To use it as an investment guide is quite without justification. Its upward movement cannot be welcomed by the railways, yet as long as the absolute amount remaining to them tends to increase, serious alarm should not be felt. However, reduction of this ratio to the

minimum figure consistent with the efficient long-time operation of a property should and will remain the goal of wise operating officials, and any property which finds itself showing, through a series of years, an abnormal ratio may well search out causes carefully, even though that ratio might not, because of large outside investments or low capitalization, imperil the financial soundness of the corporation.

An examination of the trend of the operating ratio for American railways as a whole during years past shows a gradual but, nevertheless, noticeable increase in that figure up to the period of the recent war. During that period, however, the operating ratio increased sharply, due to various causes, chief among which were a rapidly rising price level, a lessened efficiency occasioned by the psychology of the period, and the congestion of traffic. With the return of properties to private operation and the general movement toward "normalcy," this ratio has tended downward and, without doubt, will so continue until it reaches a figure more nearly comparable to those of earlier years than the ratios of 1918-1921. To expect it to drop back, however, to the characteristic figure of 60%-70% which governed from 1900 to 1913, is hardly reasonable. The individual road that obtains an operating ratio of 65% for some years to come will be as outstanding in its position as were those properties which, during an earlier period, attained ratios approximating 55%. In fact, the only probable way in which the older level can be approximately regained by the roads of the country will be through not only the attainment of maximum operating efficiency of the plant, but also by the expenditure of billions of dollars in additions and betterments, purposed to make railway operations again show increasing returns in areas where traffic demands have outrun facilities.

INTEREST ON RAILWAY BONDS

As has already been indicated, interest payments made by railways upon funded and unfunded obligations are de-



I. C. C's Statistics of Railways

Figure 31: Railway operating revenues, expenses, and income of Class I railways in the United States, monthly, 1910-1923

ducted from gross income in the process of ascertaining net. Unfortunately, gross income is not always sufficiently large in the case of all carriers to meet such interest payments, though that situation is happily becoming less common with the economic development of the country. When such payments are not met, the normal consequence is receivership. However, because such defaulted credit obligations are sometimes held by friendly interests, or are held by interests which feel such confidence in the management that they believe their position already protected as adequately as possible under existing traffic conditions, a railway property may continue to operate through its corporate organization, even though failing to meet interest payments.

The rate of interest upon bonds varies widely. Few such issues draw less than 3% and relatively few, excepting those floated during periods of "tight money," bear in excess of 6%; if a property is so situated as to make it difficult to float at par an issue bearing 6%, a discount will often be accepted rather than exceed that figure greatly. Only upon bonds bearing a contingent return, such as income and debenture issues, does the usual rate exceed 5%, the rate upon such paper being from 6% to 7%. The total outstanding issue of American railway bonds bears an average interest rate of approximately 4.8%, the individual rate depending upon the security back of the bond, the general credit of the corporation, the condition of the market, the price at which offered, and other factors of lesser importance.

DIVIDENDS ON STOCK

Dividends paid upon the stocks of American railway corporations must come out of the net income for the year, from accumulated surplus, or, in part, from both. Because of conditions surrounding and governing the issuance of railway stock during almost the first 75 years of railway development, it is not strange that certain issues have never received dividends. Table 33, on page 520 shows,

for the entire period for which definite statistics are available, a gradual improvement of the situation, an improvement evidenced not only in the amount of stock upon which dividends were paid but also an increase in both the average rate on dividend-yielding stock and the ratio of dividends declared to all stock outstanding. This improvement, however, was more conspicuous during the two decades following 1888 than it has been since—in fact, for the past decade or more there has been a gradual downward movement of both the amount of stock yielding dividends and the amount of dividends declared, as well as of the average rate on dividend-yielding stock and the ratio of dividends declared to all stock. Such a movement must certainly be reversed if railway stock issues are to occupy a place in the market worthy of the securities of a public utility corporation, a place sufficiently sound to make possible the raising of needed funds to meet growing demands.

Individual variations among roads, even those paying dividends regularly, are wide; certain issues, particularly preferred, receive as low a return as 4%, others as high as 10%. The characteristic rate, however, upon the stock of regular "dividend payers" is from 6% to 7%, though a few of the stronger roads pay as low as 5% and a very few as high as 10%. Certain roads have been intermittent dividend payers, though during recent years a property is rarely added to the dividend-paying class until prospects for the future seem reasonably bright, and dividends are rarely passed entirely except as the property finds itself in imminent danger of financial collapse.

MARKET WEAKNESS OF RAILWAY SECURITIES

The discussion which has preceded indicates the general situation of railway securities in the investment market. Stock was often issued during early years as a gift, either to make bond issues more attractive or for speculative purposes. As the years have passed, the increase in the value

TABLE 33

AMOUNT AND PERCENTAGE OF CAPITAL STOCK UPON WHICH DIVIDENDS WERE DECLARED, AND AVERAGE RATE OF DIVIDENDS DECLARED, FOR THE YEARS 1888 TO 1922

Year Ended	Percentage of Stock Yielding Dividends	Amount of Stock Yielding Dividends	Average Rate on Dividend-Yielding Stock	Ratio of Dividends Declared to All Stock
Dec. 31, 1922*	59.27	$4,298,542,432	6.32	3.75
Dec. 31, 1921	56.92	5,059,843,975	9.02‡	5.13
Dec. 31, 1920	57.30	5,075,039,642	6.52	3.74
Dec. 31, 1919	59.64	5,298,320,617	6.33	3.77
Dec. 31, 1918	58.09	5,138,851,230	6.60	3.83
Dec. 31, 1917	62.32	5,610,774,033	6.81	4.24
Dec. 31, 1916	62.02	5,430,123,235	6.75	4.19
June 30, 1916	60.38	5,279,427,954	6.48	3.91
June 30, 1915	60.45	5,219,846,562	6.29	3.80
June 30, 1914	64.39	5,667,072,956	7.97	5.13
June 30, 1913	66.14	5,780,982,416	6.37	4.22
June 30, 1912	64.73	5,581,289,249	7.17	4.64
June 30, 1911	67.65	5,730,250,326	8.03	5.42
June 30, 1910	66.71	5,412,578,457	7.50	5.00
June 30, 1909	64.01	4,920,174,118	6.53	4.18
June 30, 1908	65.69	4,843,370,740	8.07	5.30
June 30, 1907†	67.27	4,948,756,203	6.23	4.19
June 30, 1906†	66.54	4,526,958,760	6.03	4.01
June 30, 1905†	62.84	4,119,086,714	5.78	3.63
June 30, 1904†	57.47	3,643,427,319	6.09	3.50
June 30, 1903†	56.06	3,450,737,869	5.70	3.20
June 30, 1902†	55.40	3,337,644,681	5.55	3.08
June 30, 1901†	51.27	2,977,575,179	5.26	2.70
June 30, 1900†	45.66	2,668,969,895	5.23	2.39
June 30, 1899†	40.61	2,239,502,545	4.96	2.01
June 30, 1898†	33.74	1,818,113,082	5.29	1.78
June 30, 1897†	29.90	1,603,549,978	5.43	1.62
June 30, 1896†	29.83	1,559,024,075	5.62	1.68
June 30, 1895†	29.94	1,485,618,453	5.74	1.72
June 30, 1894†	36.57	1,767,925,565	5.40	1.97
June 30, 1893†	38.76	1,809,600,846	5.58	2.16
June 30, 1892†	39.40	1,825,705,437	5.35	2.11
June 30, 1891†	40.36	1,796,390,636	5.07	2.05
June 30, 1890†	36.24	1,598,131,933	5.45	1.97
June 30, 1889†	38.33	1,629,750,927	5.04	1.93
June 30, 1888†	38.56	1,490,267,149	5.38	2.08

* Class I roads only.

† Includes returns from switching and terminal companies.

‡ This percentage is high despite many reductions in dividends in 1921, because of large stock dividends by the Delaware, Lackawanna and Western and the Chicago, Burlington and Quincy Companies.

of railway property due to social growth and to reinvestment has "filled in" with solid worth a volume which was

once considerably diluted. Yet certain conditions persist which make railway stock a doubtful factor in the investment market. With regulation of rates the opportunity of abnormal returns has gone, but ineffective regulation of security issues until 1920 denied the investor protection against manipulation. Furthermore, the use of official position with the railway organization for private advantage and to the detriment of the holders of corporate securities persisted so long that the public has not been permitted to gain that degree of confidence in the integrity of railway management, as a whole, which is essential to the ready and advantageous marketing of securities dependent upon net income for their return. These factors, coupled with an element of uncertainty concerning the future relationship between railway and government, as well as the relatively high return upon industrial stocks, have made railway stocks a weak element in the market.

The position of railway bonds in the investment market has been, as might be expected because of the greater security of this type of issue, both as to principal and return, a somewhat happier one than that of stocks. This has resulted in an increase in the bond ratio, however, which, as indicated in a previous chapter, has not only diminished the margin of safety of the railways as a whole, but has also absorbed in a large measure such "slack" as might well have been kept by them for use during more critical periods than they faced from 1900 through 1917. The rate upon railway bonds has been affected somewhat unfavorably from a railway point of view by the competition of industrial issues much as has been railway stock, but the dominant position of bonds in the financial market has not been undermined in a degree at all comparable to that of shares.

NEEDED CHANGES TO EFFECT CREDIT REHABILITATION

The future position of railway securities in the investment market will depend primarily upon two factors: the rate of

return of which it is possible to be reasonably assured under public regulation, and the integrity of railway management. If the billions of dollars now needed and the additional billions which will be needed in the near future to keep the railway plant abreast of economic and commercial needs are to be forthcoming upon reasonable terms, or available at all under a system of private ownership and operation, regulative bodies must at all times give consideration not

TABLE 34

RECAPITULATION—CLASS I RAILWAYS—YEAR ENDING DECEMBER 31, 1922

INCOME ACCOUNT	
Railway operating revenues	$5,559,092,708
Railway operating expenses	4,414,522,334
Net revenues from railway operations	$1,144,570,374
Railway tax accruals	301,034,923
Uncollectable railway revenues	1,462,522
Railway operating income	$ 842,072,929
Revenues from miscellaneous operations	$ 4,176,655
Expenses of miscellaneous operations	2,537,444
Net revenue from miscellaneous operations	$ 1,639,211
Taxes on miscellaneous operating property	1,336,608
Miscellaneous operating income	$ 302,603
Total operating income	$ 842,375,532
Hire of freight-cars—credit balance	$ 21,995,686
Rent from locomotives	9,933,946
Rent from passenger-train cars	16,196,147
Other items of non-operating income	301,173,284
Total non-operating income	$ 349,299,063
Gross income	$1,191,674,595
Hire of freight-cars—debit balance	$ 77,785,533
Rent for locomotives	11,121,031
Rent for passenger-train cars	17,587,971
Other items deducted	713,923,627
Total deductions from gross income	$ 820,418,262
Net income	$ 371,256,333
Income applied to sinking and other reserve funds	$ 9,759,485
Dividend appropriations of income	176,858,099
Various other appropriations of net income	16,126,708
Total appropriations of income	$ 202,744,292
Income transferred to profit and loss	$ 168,512,041

TABLE 34 *(Continued)*

RECAPITULATION—CLASS I RAILWAYS—YEAR ENDING DECEMBER 31, 1922

PROFIT AND LOSS ACCOUNT	
Credit balance transferred from income	$ 237,698,465
Profit on road and equipment sold	1,475,869
Delayed income credits	490,972
Unrefundable overcharges	1,598,497
Donations	4,560,225
Miscellaneous credits	169,382,652
Total credits during year	$ 415,206,680
Debit balance transferred from income	$ 69,186,424
Surplus applied to sinking and other reserve funds	3,105,528
Dividend appropriations of surplus	94,715,652
Surplus appropriated for investment in physical property	19,016,001
Stock discount extinguished through surplus	.....
Debt discount extinguished through surplus	10,377,159
Miscellaneous appropriations of surplus	694,583
Loss on retired road and equipment	33,595,155
Delayed income debits	732,184
Miscellaneous debits	56,203,638
Total debits during year	$ 287,626,324
Net increase during year	$ 127,580,356
Balance at beginning of year	1,907,464,056
Balance at end of year	$2,035,044,412

alone to the immediate desires and the needs of shippers, but also to the fundamental financial requirements of the railway business. But mere opportunity for ample earnings will not rehabilitate railway securities in the market: the inefficient or fraudulent management of even a few properties will continue to affect railway securities unfavorably. The public must, therefore, in its own interests—directly as investors and ultimately as consumers of service—and in the interest of the railways themselves, not only permit the carriers to earn an adequate return, but also, through legislative safeguards, assist railway management, fundamentally honest and efficient, in eliminating objectionable practices and inefficient or dishonest officials, whose actions have given character to railway issues quite out of proportion to the number or powers of those officials in the field.

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XXIII

THEORIES OF RATE-MAKING

Need of sound and definite principles. Theories of rate-making: ability, cost, and social need. Meaning and worth of "Value-of-the-service." "Keep-everybody-in-business"—nature and soundness. Use of the developmental rate. Place of the developmental principle in rate-making. "Value-of-the-commodity." Nature, importance, and evaluation of "what-the-traffic-will-bear." Cost of service. Difficulties of ascertaining and applying costs. The strength of cost of service. Conclusions concerning cost as a rate base. Social need. Position of regulative bodies. A reasonable basis for the determination of railway rates.

In an earlier chapter dealing with the freight service, mention was made of certain theories or governing principles of rate determination which exercise more or less influence upon the actual tariff charge for a particular service. As introductory to a brief study of the rate structures peculiar to various geographical areas and to their evaluation, it is necessary that these theories or principles be further elaborated and analyzed. To this end an attempt will be made to set forth the character of the various principles as well as to examine each, to determine the degree to which a rate based upon it conforms to the legal requirement that "all rates be just and reasonable." This legal requirement is itself of a somewhat indefinite character, however: though in theory there is *a* reasonable rate, in reality there seems to exist a *zone of reasonableness* of some width, below which rates must be judged confiscatory and above, extortionate.

NEED OF SOUND AND DEFINITE PRINCIPLES

Sound and definite principles of rate-making are desirable from the standpoint of the railway. Without the guidance thus given, a rate structure tends to become but a hodge-

podge of individual rates fixed upon the basis of particular conditions rather than constituting a *system* of rates, harmonious and orderly. Without such principles it is difficult to initiate or to modify individual rates because of the absence of any yardstick of justice or reasonableness, and it is equally difficult to satisfy the public as to the fairness of particular rates or of rates as a whole. This need of a definite basis for the determination of rates has become even greater with the development of public control. Regulatory bodies, under obligation to deal justly with individuals and places on the one hand, and with the carriers on the other, must act in accord with some definite principle or policy. While it is conceivable that rate-making upon private initiative might follow no definite policy, it is improbable that the public would tolerate an absence of such policy on the part of a body designed to protect its interests. For such a body to navigate the seas of regulation without chart or compass might easily aggravate, rather than lessen, conflict between public and private interests. From the standpoint of the business and of the public it is essential, therefore, that a certain definite principle, or principles, subject to such modifications as peculiar conditions may necessitate, be accepted as basic in rate-making.

THEORIES OF RATE DETERMINATION

Rate-making in the past has been opportunistic in large measure, a result primarily of that gradual development of rate structure which followed the extension of the railway net and the diversification of traffic. It is therefore difficult to discover clearly in rate practice, and to isolate, all governing principles which have operated in the determination of particular rates. Certain definite theories are discernible, nevertheless, which are of sufficient importance in rate-making practice to justify individual treatment. These fall under three main heads, *ability to pay, cost,* and *social need.* Of these the ability and the cost principles, the

one stressing revenue and the other expense as the basic element in rate determination, are, in every sense, most significant. Either group must take into consideration the other element, however, for maximum gross revenue does not always yield the maximum net return and the carrier cannot emphasize cost to the exclusion of the other.

"VALUE-OF-THE-SERVICE"

Various rate policies or principles, widely divergent in character and purpose, seem to be included properly under the general head of *ability to pay*. One of these is the so-called value-of-the-service principle. By value-of-the-service is meant, fundamentally, *that amount which the public will pay rather than dispense with the service,* a basis which calls for the absorption by the railway of the entire difference between the value of the goods, independently determined, where they are produced and the value in the distant market. Since, in the long run, under competitive conditions, the value of the product in the market will tend to conform to the expense of producing the marginal portion needed, it may be said that this value of the service to the shipper is the difference between the local expense of production and the value of the product upon the central market. In the short run, however, a yet greater sum may be exacted by the carrier, since the subjective value placed upon goods by a producer for the market may be much less than the expense of production, when those goods are considered solely from the standpoint of their own use. At a particular time, therefore, it would appear that the value of the service may greatly exceed the difference as set forth above. In this connection care must be taken to avoid a fallacy which grows out of the relationship of the transportation charge to the value of the product in the market or at the point of production. To say that because the price of wheat in Chicago is $1 a bushel and at a certain Dakota point is 80 cents a bushel the value of the service is 20 cents, is to for-

get entirely that the value of wheat in the Dakotas is based upon the Chicago price—that *the difference is fundamentally the cost of transportation itself*. A higher rate would result in a lower price in the Dakotas while a lower rate would increase the price there. The difference between the price paid in the central market and that paid the producer at a particular time in no sense measures the value of the service; rather, it represents the cost of transportation between the two points at that moment.

In the discussion of the value-of-the-service principle it is generally assumed that the expense of production is uniform. Such is not the case, however, either as among individuals or as among producing areas. For the carrier to prescribe a uniform charge based upon the difference in the value of the product in the central market and the local expense of production—if such a difference could be discovered independently—means, therefore, that a particular producer or a particular locality must be designated as marginal, and rates so fixed as to permit that one to enjoy only necessary profits. This, of course, results in the determination of the location of the margin not by natural competitive action but, rather, in accordance with the self-interest of the carrier; or, if uniform charges are not made, the principle involves the development of discriminatory tariffs, so adjusted, as among individuals and as among places, as to exact from each enterprise and each locality the maximum which can be taken without driving it from the field, *these exactions being in inverse ratio to efficiency of production or advantage of location*. That this principle has actually been used in the determination of rates is attested by many experiences that shippers have had with freight tariffs which have increased as prices rose and have declined with recessions in price.

From the standpoint of the carrier such a system of rate-making, though yielding to the carrier the maximum revenue obtainable at a particular time, is unsatisfactory. The rate so based is both difficult to determine and unstable in

character, the former because of the varying degrees to which transportation enters into the expense of production, the latter because rates made in accord with such a principle must vary from year to year and from season to season. Its observance also tends to "kill the goose that lays the golden egg." From the standpoint of the public such a basis is indefensible because of its fluctuating character, because of the degree to which individual judgment enters into its determination, and, particularly, because rates so fixed are extortionate and unjust in character: they take all gains due to superior efficiency and advantageous location. Individual incentive to produce is lessened and society's right to be served by those producers who can place their goods upon the market at the lowest cost is thwarted. As a principle of rate-making, value-of-the-service is wholly unsound from a public point of view and is justifiable from the standpoint of the railway only in the face of extreme need.

"KEEP-EVERYBODY-IN-BUSINESS"

A second principle or policy of rate-making, which recognizes ability to pay as basic, is that which has sometimes been characterized by the phrase "keep-everybody-in-business." This policy calls for "just meeting competition" and results in the fixing of rates by carriers serving the less efficient producers—in fact, by carriers serving entire productive areas which are disadvantageously situated—upon such a basis as to permit the submarginal producer or community to enter a particular market upon an equality with others that are supramarginal, either because of superior efficiency or locational advantage. This policy has been, in some cases, the result of a deliberate determination on the part of a particular carrier or group of carriers to increase tonnage by placing individuals or areas tributary to them into markets which economically belong to others. In other instances, however, it has been but a by-product of another policy: a railway, in an effort to build up a back-haul traffic

which will relieve it of the necessity of returning large numbers of empty cars, offers a rate upon tonnage which opens up, to certain additional producers and areas, markets previously closed to them.

From the standpoint of the railway such a rate policy has the advantage of creating additional business for that carrier and, since the railway business in the United States has been so preeminently one of increasing returns in the past, this additional business has often been carried with profit at rates which were ridiculously low as compared with standard charges. The policy of "keep-everybody-in-business" is likewise advantageous to those individuals or localities favored. On the other hand, the more favorably situated carrier which, because of its location, may rightly expect to control a particular market, is the loser through the adoption by "interlopers" of such a principle. Furthermore, as other roads, seeking to recoup losses, invade the territory naturally tributary to the carrier which first forced entry into the markets of others, the major advantage enjoyed by the aggressor, and flowing from his policy of invasion, is lost. The net long-time result tends to be, therefore, that *no* carrier handles a materially increased tonnage; instead, all handle certain competitive tonnage at abnormally low rates which lessen revenue and, in consequence, increase the burdens that must be borne by other traffic. Then, too, the shipper who is more favorably situated with respect to a particular market, either because of superior efficiency or of more advantageous location, has just ground for complaint against a policy which places all producers in a particular market upon an equal footing, without regard to merit. Such a policy, unless accepted universally, results in the confiscation of a portion of that advantage to which this more favorably situated producer is entitled, and for which he has often paid.

From an economic standpoint the policy of "keep-everybody-in-business" is objectionable. It encourages the premature development of natural resources, perhaps to the

advantage of the present generation but certainly to the detriment of the future. Further, it justifies discrimination among commodities, among places, and among individuals, and results in the confiscation at will by the carrier and to such degree as it sees fit, of surplus gains which flow from superior natural opportunities or exceptional management, rather than from the service of transportation. From a social standpoint such a principle of rate-making is objectionable also, because it places the individual and the community completely at the mercy of the carrier and thus presents a strong temptation for favoritism. Indeed, under a competitive system it is only when subject to regulation that such a principle would be in any sense tolerable, but even then rates based upon it would conform in no sense to the legal requirement of justice and reasonableness. "Keep-everybody-in-business" is unsound in theory, unsafe in practice and, in its ultimate results, objectionable from the standpoint of producer, carrier, and public alike. As a theoretical cornerstone for the building of a rate structure it is impossible; the maximum service which it can legitimately render is to modify rates otherwise determined.

USE OF DEVELOPMENTAL PRINCIPLE

Yet another of the principles which properly seems to fall under the head of ability to pay is that which is so generally termed "developmental." As the name would indicate, the purpose of a rate made in accordance with this principle is to promote the establishment or growth of a new industry. In consequence, the tariff fixed is characteristically much below the general level of rates. Indeed, as the "value-of-the-service" rate stands at the one extreme, the developmental rate stands at the other. This principle occupies a position in the field of transportation somewhat analogous to that of the bounty sometimes offered by the public to stimulate the development of a particular industry, or its converse, a protective duty levied to the same end. In

this, just as in the industrial field, clear justification exists for such a policy if, by its adoption, the public may be reasonably assured of a lesser expense of production after a period of years. Indeed, a carrier might justify, from both its own and from a social standpoint, the offering of such a rate when *equality* of cost was the maximum result to be anticipated. There is, however, no justification for the offering of developmental rates upon traffic which gives little or no promise of becoming self-supporting from the standpoint of the carrier; such a permanent subsidy can be met only by levying higher rates upon other traffic. Society has no more place for parasitic industries than parasitic individuals.

The developmental principle has been employed widely by American railways in the stimulation of new areas and of new industries. Indeed, the tremendously rapid industrial and commercial growth of the United States has been due in great measure to the farsighted policy of our carriers, to their willingness to take chances with the producer in the development of new business. The developmental rate, however, is one which the shipper can neither demand as a right and secure, even through public bodies, nor retain, once given, beyond a period which seems desirable to the carrier. This, of course, places a heavy responsibility upon the railway in the selection of industries to be encouraged and the degree to which that encouragement should be carried.

PLACE OF DEVELOPMENTAL PRINCIPLE

The use of the development rate is attended by certain dangers and difficulties. Many instances may be cited of the excessive stimulation of enterprise: when the time has come for the undertaking to assume its proper rate burden, many normally submarginal producers, lured into the field by unusually favorable rates, suffered heavy losses. Then, too, such rates may be mistakenly accorded industries or

localities which can never become self-supporting, or they may occasion the overextension of tributary market areas with a consequent overlapping and cross-hauling which causes social loss. Furthermore, the developmental rate has been subject at times to improper use, serving merely as a cloak for favoritism and unjust discrimination. A difficult problem incident to its employment arises when the rate is increased to a normal level. Both the time at which increases should be made and the rate of increase are delicate problems, with error penalizing carrier and producer alike. Nevertheless, this principle appears to be fundamentally sound, both from a railway and from a public point of view, and other traffic, temporarily burdened because of a low rate upon favored items, has no ground for complaint if the future gives reasonable promise of a tonnage which will lessen the expense burden of existing business. However, the wisdom of vesting such extensive power in corporate enterprise conducted for private gain, the cost of whose errors must be paid largely by producers lured into the field, may properly be questioned, except as that power is subject to a greater degree of public control than it now is. Yet such control is, in no sense, a positive guarantee against error in the utilization of the developmental rate: the honest intent and public purpose of governmental agencies gives no assurance of infallible judgment.

"VALUE-OF-THE-COMMODITY"

Another principle of rate-making properly assignable to the ability group is that which is termed "value-of-the-commodity." This principle as an ability index must be differentiated clearly in the beginning, however, from "value-of-the-commodity" as a cost factor. It is evident that the expense of handling traffic varies somewhat with the value of the commodity: goods of high value occasion greater risk, for example, than do goods of low value, and therefore necessitate greater care. Yet quite beyond the cost element,

the value of the commodity may be taken as an index of the ability of the goods to bear a charge, and rates may therefore be fixed roughly in proportion to the value of the shipment. Such a scheme is akin to the principle of equality of sacrifice in the field of taxation, except that here the particular good rather than the individual is regarded as the unit. That the "value-of-the-commodity" principle is actually given recognition in rate-making is evident from an examination of freight classifications, as indicated in an earlier chapter; on the whole, goods of low value receive a low classification, while goods of high value are given higher ratings. However, it should be recalled that, in the determination of classification, not only are cost considerations intermingled with the estimate of ability to pay but other modifying factors, such as competition, enter to such a degree that no exact relationship appears between the value of the good and the classification which it enjoys.

Under any system of rate-making, even the most rigid cost-of-service plan conceivably workable, the value of the commodity must enter as a factor. Yet it appears from the decision of regulatory bodies that its recognition as an ability factor is legitimate only within certain narrow limits, where no appreciable difference in the nature of the products appears. Despite the fact that logs intended for pulp-wood use might bear a higher rate than those intended for lumber, differentiation in rate has been forbidden and, although differences in value among fire, building, and paving bricks exist, it has been held that there is no justification for rate differentiation. On the other hand, it has also been held that cheap china, shipped in the same manner as fine china, is entitled to lower classification than the latter. It seems probable that, as regulatory policy takes more definite form, the justification of a lower classification upon less valuable commodities will be recognized, since it will become increasingly clear with experience that no cost basis of rate-making can succeed which attempts to tax rough castings, for ex-

ample, on even measurably the same basis as other manufactured metal products of higher value per unit of bulk.

"WHAT-THE-TRAFFIC-WILL-BEAR"

From the standpoint of actual use the most important of the so-called ability theories is that which is widely known as "what-the-traffic-will-bear." Under this principle rates are so fixed as to yield to the railway the maximum amount consistent with the further development of industry and trade throughout its territory. In fact, it represents essentially the application in the railway field of the principle of monopoly price. Although frequently the term "value-of-the-service" is used in describing a policy of rate-making based upon the monopoly principle, it has seemed worth while to the writer to distinguish between the short-time and the long-time point of view. Rates levied in accordance with the former principle are extortionate, equal to "that amount which the shipper will pay rather than dispense with the service," while rates levied in accordance with the latter show an enlightened self-interest on the part of the carriers.

Rates based upon the principle of "what-the-traffic-will-bear" will vary somewhat between communities and between commodities; they will offer, to use the words of Acworth, an "equitable concession to the weaker members of the community." These variations, under a system of private ownership and operation, must be determined by private individuals or bodies interested essentially in profits, and hence will rest primarily upon the ability of the particular commodity, locality, or individual, to pay. This ability is dependent, in turn, upon natural advantage or superior efficiency. The extent of this ability to pay must be found experimentally, since no definite standard exists, and from time to time it will be modified by the appearance of alternative transportation agencies as well as by changes in the present condition and future prospects of the business in question. It is needful, however, to differentiate clearly

between rates fixed upon the principle of "what-the-traffic-will-bear" and those designed to "keep-everybody-in-business." The latter principle, fully developed, is essentially an extreme application or extension of the former, substituting thereby the individual bargain for the group rate. "Keep-everybody-in-business" represents, in short, merely a high development of class price as opposed to a single monopoly price.

"What-the-traffic-will-bear" has been extensively used by railway officials. Indeed, so exclusively has it controlled the making of rates and so active a part in railway development has it played, that it has quite properly been characterized as the "great dynamic force" in American railway development. Various reasons account for its ready acceptance by railway officials. Most important, perhaps, it has given to the American rate structure that elasticity which is peculiarly essential in a rapidly developing country with changing needs and with new traffic conditions constantly appearing. This principle has also been wholly consonant with the private aspect of railway enterprise since, under it, rates could be adjusted from time to time and in such manner as to yield the highest net profit—the goal of individual business endeavor. Then, too, rate-making in accordance with this principle gives to railway managers a degree of personal power and a scope for the exercise of individual discretion which has been in no sense displeasing to them. Perhaps other factors have also strengthened railway allegiance to "what-the-traffic-will-bear" as a basis of rate determination; at least railway management insists strenuously upon its retention and is sharply opposed to any development which promises to curtail the power so long exercised by them at will.

EVALUATION OF "WHAT-THE-TRAFFIC-WILL-BEAR"

Certain features of the policy of "what-the-traffic-will-bear" are difficult to evaluate. Under its influence the

American rate structure has assuredly shown itself to be highly elastic and capable of rapid and complete adaptation to changing needs. Yet, in view of conditions which now exist, it appears that the two outstanding needs of the American rate structure today are stability and uniformity between sections, even at the expense of a degree of elasticity. Though certain beneficial results have come from its adaptable character in the past, that very elasticity has made for uncertainty and instability of rates and has served the railways as an offensive weapon in the struggle for existing business as often as it has served helpfully in the development of new. Moreover, because of the numerous special rates which are characteristic of an elastic rate structure, our tariffs have become voluminous and complex and the charges borne by standard traffic have been increased. Although not giving rise to discrimination among commodities, places, and persons to the degree that is characteristic of the principle of "keep-everybody-in-business," "what-the-traffic-will-bear" must, by its very nature, prove discriminatory; concessions in rates to one individual, to one locality, or to one commodity, must necessarily weaken the position enjoyed by another.

Furthermore, this principle of rate-making runs counter to public interest in several particulars. The basis of the charge is essentially monopolistic in character, failing thereby to conform to the requirement that rates be just and reasonable to the shipper. To quote Clarke, there may be "between railroad self-interest and truly 'equitable concessions' as wide a difference as between ancient systems of taxation aiming only at the largest obtainable revenue and the modern system intelligently based on the tax-payer's ability to pay." Furthermore, the railway's immediate and dominant interest in traffic is financial, and only in so far as the economic and social effects of railway policies *influence revenue through traffic,* does the carrier give weight to matters of public concern. Under such conditions Clark's observation is well put, that "a skeptical mind would hardly

be persuaded that the roads could be wholly trusted to carry out a satisfactory social policy." Indeed, so divergent are public and private purposes that there is no reasonable assurance that even, *in the main,* rates based upon the principle of "what-the-traffic-will-bear" result in the market being served by those producers who can "satisfy its wants at the lowest social expense."

To summarize our evaluation of "what-the-traffic-will-bear" as a basic principle of rate-making, it may be said that, from the standpoint of private interest, such a principle, yielding as it does the highest net return, may well receive the complete support of railway management. Probably it is only right to grant that the fixation of rates in accord with this principle has been not only fundamentally important but also highly helpful in the past, in furthering the rapid development of industry and trade. However, such a monopolistic principle cannot be accepted as sound from a public standpoint and its use by commissions and other regulative bodies is impossible. The officer of a private corporation may legitimately construct rates in accordance with his judgment of the relative abilities of goods to bear, but not so a public body charged with the impartial administration of the law: the line between reasonable and unreasonable discrimination is too ill-defined to permit of extended departures from the nearest approach attainable to the goal of regulation—equality of treatment to all. Indeed, it would seem that, to paraphrase, only a "railway traffic official or the son of a traffic official" could vision a future for "what-the-traffic-will-bear" which is more than a shadow of its past: the very existence of regulative bodies and the constant appeal to them for assistance are occasioned largely by the high and discriminatory charges to which the public has been subjected under the operation of that monopolistic principle of rate-making. Under a system of regulation the importance of "what-the-traffic-will-bear" is certain to diminish; it will become but one of the several factors given weight in the construction of tar-

iffs rather than reign as monarch in the rate-making field. As cost-finding advances, its influence will steadily wane.

COST OF SERVICE DEFINED

The second important principle recognized as a basis for the determination of railway rates is that commonly known by the term "cost of service." Various meanings or interpretations have been given it: if total revenues coincide with total expenses, necessary profits being included in the latter, it has been contended that the railway is rendering service at cost; similarly, though using the term in a somewhat more refined sense, it has been declared that, if the revenues from each particular *type* of service and the expenses incident thereto are approximately equal, service is upon a cost basis. To attempt, however, to justify the charge for a specific service in behalf of a particular patron upon the ground that revenues and expenses as a whole, or even revenues and expenses flowing from the particular *type* of service—passenger, freight, and so forth—are equal, must fail; such reasoning in nowise convinces that shipper of the justness of the individual rate applied. To have any meaning whatever to the shipper, cost of service must imply *a measure of equality between the revenue derived from a particular service and the expenses incident to the rendition of that service.* However fair rates may be as a whole, to shippers as a whole, the test of justice and reasonableness is the amount of particular rates.

TYPES OF COST OF SERVICE

In the ascertainment of cost of service two major expense elements must be considered. Of these the first in time of appearance, though the lesser in amount, is capital cost, under this head being included all amounts paid for the use of capital employed in the rendition of service. The second cost element, which now constitutes more than 75%

of the total expense of rendering railway service, is the operating cost of the property. The two important groups of operating costs are expenditures for the maintenance of the various properties and expenditures incident to the actual movement of traffic. The need of distinguishing among these major cost elements appears when a study is made of the various types of cost of service of which three are often differentiated, each shading off gradually into the other.

Considered as a going concern, the railway must meet regularly and in full both operating and capital costs. The sum of these two, representing the total cost of service, may be prorated among the various types of traffic in such manner that each shipment bears its fair proportion of both types of costs. To this interpretation of cost of service is sometimes given the name "average total cost." On the other hand, it may be that existing traffic already bears a burden sufficient to meet capital costs, or, indeed, it is possible that, under conditions of government ownership and operation or of operation by a receiver, effort is made, permanently or temporarily, to meet *only operating cost.* Under such conditions it will be necessary to burden additional traffic, or perhaps all traffic, only by such a rate as will meet operating expenses. To this type may be applied the term "average operating cost." Still further, it is not only conceivable but, often, an actual fact that existing traffic is sufficiently burdened to meet all expenses, both capital and operating, incident to the rendition of service. What, then, is the minimum charge which the railway can make, without actual loss to itself, for the movement of additional tonnage which will be offered only upon the basis of an unusually low rate? To answer this question it becomes necessary for the railway official to determine with reasonable accuracy the actual increase in outlay attributable to this additional tonnage. To this figure has often been applied the term "additional cost of the specific service."

To make clearer not only the type of cost of service last

described, but the other two as well, let an extremely simple situation be assumed—a railway operating from station A to station B, 50 miles distant, with no intermediate stops. Let us assume further that this railway handles but one type of traffic which moves in standard carload quantities and in trains of uniform tonnage. If, in the course of a year, this carrier moves 1,000,000 tons of freight at a cost of $1,000,000, then the *average total cost of service* would equal $1 per ton, or at the rate of 2 cents per ton-mile, for the movement between the termini named. If it be further assumed that, of the total expenses, 75% are attributable to operation, then *average operating cost of service* would be found by dividing $750,000 by the total tonnage, giving a cost per ton of 75 cents and per ton-mile of $.015. If it be presumed, however, that additional tonnage may be obtained at a rate still below average operating cost, it becomes incumbent upon the railway to discover what rate must be applied in order that the added cost might be covered. If traffic has been moving in train lots averaging 1,000 tons and it is found that an additional 50 tons per train can be handled at a total train cost of $1,010, then, since the average total cost of service for a 1,000-ton train equals $1,000, the *additional cost* attributable to the added car is but $10, an average of 20 cents per ton and $.004 per ton-mile. Any charge in excess of that figure, average total cost being cared for by other traffic, would net a surplus to the carrier and would permit the carrier to lower somewhat the average total cost figure levied against the original traffic, without trenching upon necessary profits.

THE ASCERTAINMENT AND APPLICATION OF COSTS

Because of its simplicity and its definite character, cost of service has long been urged as a basis for the determination of railway rates. Yet certain difficulties inherent in the principle, together with the unwillingness of railway management to abandon the use of "what-the-traffic-will-

bear" as fundamental, has made progress toward a cost basis necessarily slow. Two major difficulties have been encountered in its application. In the first place, cost of service of any type is difficult to ascertain. This is true in part because of the significance of the principle of joint costs in the railway field. The same road-bed is used in the rendition of freight, passenger, express, and mail service, and in many instances the same station buildings and other structures are also jointly used. A single freight train will be made up of carloads of various types of commodities and, in the case of less-than-carload movements, within the same car are found perhaps a hundred different items. Therefore, even though expenses might be properly and accurately allocated among the various types of service, it becomes increasingly difficult as we move from freight as a whole to the individual shipment of a particular commodity, to fix with exactitude that precise portion of the total cost which is properly attributable to each individual service. This difficulty, growing out of the joint cost problem, is accentuated by the almost complete absence in the railway field of cost accounting data. Due largely to the fact that railway officials have not yet awakened to the possible service of cost accounting to that industry, data showing individual costs are fewer in the railway field than in any other of like importance. Once the carriers awake to the need of accurate cost accounting and make sincere efforts to arrive at specific costs, it is probable that the joint cost "bogie" will be found to be largely a thing of straw.

But the *ascertainment* of costs is only one of the difficulties encountered in utilizing cost of service as a basis of rate-making; the *application* of the consequent rates constitutes a troublesome problem in itself. Were the cost of service incident to the movement of each type of traffic capable of most exact ascertainment it would be found that a considerable portion of the tonnage now handled upon low rates would be so heavily burdened by the application of

cost figures, as to impede, even block, movement. Then, too, were goods assessed upon a purely cost basis, the rate structure would assume a rigidity ill adapted to changing conditions and to the development of new traffic.

THE STRENGTH OF COST OF SERVICE

Despite difficulties in the ascertainment and in the use of cost of service as a basis of rate-making, its virtues are such as to recommend it strongly to all impartial students of the problem of rate determination and to give it an increasing importance in the minds of those regulatory bodies whose obligation it is to secure for the public just and reasonable rates. The public has become accustomed under a competitive régime to cost as a price basis and, although partially realizing that certain fields are not competitive in character, the only basis of charge which is accepted by that public as, *prima facie*, reasonable is that which rests squarely upon cost. Then, too, cost of service furnishes a standard much more definite and exact, much less influenced by individual judgment, far less prone to use as a vehicle for favoritism, than any other basis of rate-making which has been suggested. Cost of service also, if employed as the fundamental basis in rate determination, would wholly eliminate personal discrimination—an abuse characteristic of our rate system in the past and the basis of widespread and emphatic complaint against the railways at all times. Furthermore, its application would eliminate very largely those instances of place and commodity discrimination which have been so important in arousing public antagonism against railway management. Then, too, if cost were used as a basis, business uncertainty, due to fluctuations in the rate level, would be minimized: the entire rate structure would assume an aspect of solidity and permanency which has been wanting in the past. And, finally, the more general use of cost would eliminate much cross-hauling of freight, an important present cause of social waste.

CONCLUSIONS CONCERNING COST AS A RATE BASE

Although it is difficult to evaluate cost of service as a basis of rate-making, we may safely state that opposition to it exists largely because it curtails the scope of action of railway management and because it presents certain difficulties which many regard as insuperable. Yet assuredly no justification exists for delaying the acceptance of this principle upon the first score and it appears that careful analysis and a reasonable application of cost of service will solve, in large measure, the difficulties incident to its use. The collection of a body of cost accounting data for the railway industry will lessen the significance of joint costs materially and the residuum which is incapable of accurate distribution on an actual cost basis can be assigned in a prescribed manner so that the resultant figures will represent, on the whole, a much fairer basis for the determination of rates than the judgment of any single railway rate expert or any group of such men. A policy of charging against bulky goods of low value something less than average total cost, and recouping sums lost thereby from higher grade traffic, will meet one problem of application, while the modification of the cost principle by certain others, such as the developmental, will retain for our rate structure that adaptability necessary to meet changing conditions, yet enable business to avoid the uncertainties and fluctuations of past rate schedules. On the whole, therefore, it would seem that cost of service forms not only a sound theoretical cornerstone for the determination of rates, but also enjoys that peculiar advantage in the public mind of conforming to accepted standards of justice and reasonableness.

Yet a third general principle of rate-making is that which would base rates upon social need. This scheme is sometimes termed the "postal" theory because of its tendency to fix rates with little regard for distance. Under a system of private ownership and operation of railways it is un-

likely that such a principle of rate-making could gain appreciable recognition though it is entirely conceivable that, under any form of government ownership and operation, the prospect of social gain might occasion the application of this principle to particular types of traffic or, indeed, to traffic as a whole. In fact, as will be set forth in greater detail later, the State Railroad Commission of Texas, to accomplish certain social and economic ends, adopted and continued in force for many years an intrastate rate structure which minimized locational advantage in great measure. This was accomplished by the application of a flat rate upon freight shipments beyond a certain distance. The flat rate is also used to a lesser degree in a great many other rate structures, various areas being "blanketed" by the railways. Such "blanketed" areas have developed, however, through no desire on the part of the railways to serve a social purpose but, rather, as a compromise between competing lines or competing markets. Social need as a principle of rate-making can be justified, of course, only upon the basis of social utility, and therefore the ordinary legal requirement that rates be just and reasonable could be applied by regulative bodies only with difficulty and subject always, under a régime of private ownership and operation, to the limitation that the rates so fixed yield the carrier a fair return.

POSITION OF REGULATIVE BODIES

The position of regulative bodies concerning the soundness of the various rate theories has undergone an interesting evolution. During the early years of federal regulation, the Interstate Commerce Commission evidenced rather clearly an adherence to the various ability theories. With the passage of time, the position not only of the Interstate Commerce Commission but also of the various state bodies shifted in the direction of a cost basis. At present a somewhat illogical but workable policy of giving weight to many principles governs, but movement toward the cost basis con-

tinues. Because of the lack of detailed and accurate cost data it has been quite natural that regulatory bodies should judge the reasonableness of a particular rate which has been called into question by comparing it with other rates governing comparable movements. Yet, as the power of commissions has increased and data relative to costs are augmented, these bodies give unmistakable evidence of their purpose to shift from a relative cost basis to one of absolute cost, under which actual cost figures, ascertained by careful study, will constitute the "yardstick of reasonableness."

A REASONABLE BASIS FOR RATE DETERMINATION

From the foregoing discussion it is clear that both reason and practice support the soundness of cost of service as a basic principle in the determination of rates. If it be somewhat modified in the freight field by the recognition of the "value-of-the-commodity" and of the developmental principles, together with social need, it would appear that not only a reasonable but also an essentially workable rate structure might be developed. In the passenger field, however, important modifications might well rest primarily upon a recognition of social need and of "what-the-traffic-will-bear." The former deserves consideration because the maximum intermingling of peoples in a country as broad as the United States is desirable for the promotion of cultural unity, while weight to the latter is justified because, in the rendition of passenger service, it is possible to differentiate upon the basis of ability to pay much more surely and definitely than in the field of freight service where a particular commodity or shipment may be used by either rich or poor. A change, gradually and carefully made, of present diverse rate structures, built in accord with other principles or in accord with none at all, to a structure conforming roughly to the plan suggested above, might well be undertaken. Such a structure would give to the railway financial protection and to the patron a rate which is not only just

and reasonable but which also bears evidence of fairness upon its face. That goal is truly deserving of the highest efforts of both carriers and public.

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XXIV

RATE-MAKING IN PRACTICE: EASTERN AND SOUTHERN TERRITORY

Varied conditions faced by American railways. Evolution of different rate structures. Trunk Line territory: early competition; four disturbing elements; the adjustment among types of routes; the McGraham scale and its later modifications in rate practice; minor problems. Central Freight Association rate structure. Rate-making in New England and Eastern Trunk Line territory. Summary statement. Peculiar influences operating to shape the Southern rate structure. The basing-point system: its origin, nature and alleged justification. "In" rates the major problem. Importance of the Baltimore-Atlanta rate. Industrial competition in the South. Decline of river traffic. Southern rate structure changing rapidly. Rate-making within the South. Importance of regulation in effecting needed changes in the Southern structure.

In no other country in the world do railways face more varied conditions than in the United States. Wide variations in economic conditions, wide variations in physiographic and climatic conditions and even in opportunities for physical development and growth, together with a gradual evolution both of the transportation system and of industrial life, have combined to compel the railways in various sections of the country to adjust themselves to widely divergent needs. Out of this there have developed, naturally and inevitably, quite divergent rate structures in the various traffic areas instead of a single, uniform structure applying throughout the United States. With the westward growth of the railway net new problems arose and, as each new section was added to the areas already developed, modifications of old principles had to be made and certain new principles of rate-making evolved, to meet the necessities arising from the appearance of competitive conditions and economic needs quite different from those previously faced. Within certain natural boundaries or barriers developed,

therefore, new structures designed to meet the peculiar conditions there found.

Perhaps the first of the rate structures to take form was the so-called Trunk Line system, more recently known as Eastern Trunk Line, which applied, roughly speaking, to the Middle Atlantic states. Following closely the development of this structure, and, with it, rate-making practice in New England, came the evolution of the Southern system. And then, in due course, came the development of a definite structure in Central Freight Association territory, which covers approximately the East North Central states. As building progressed westward, Western Trunk Line territory was defined, also Trans-Missouri and Southwestern territories. The final district in which a system of rates developed was Transcontinental territory. In these areas evolved distinct rate structures, each to be described in turn.

TRUNK LINE TERRITORY

In accordance with earlier usage, Trunk Line territory was defined as lying east of the Ohio and a line running roughly from Pittsburgh, Pennsylvania, through Warren, Pennsylvania, and Salamanca, New York, to Buffalo and Niagara Falls, and north of a line from Kenova, West Virginia, through Roanoke and Lynchburg, Virginia, to Norfolk; its northern boundary was Canada, its eastern, New England and the Atlantic. But, because the early so-called "trunk lines" reaching from the Atlantic seaboard to Ohio and Lake Erie ports were, almost without exception, extended westward to Chicago and St. Louis, and because of the fact that New England rates have increasingly borne a more intimate relation to the structure governing in Trunk Line territory proper and Central Freight Association territory, the term Trunk Line has been broadened to include the whole of that area embraced within these three lesser districts. When the term "Trunk Line" is used in this discussion without the adjective "Eastern," therefore, the

Figure 32: Rate territories in the United States and important sub-territories

area to which reference is made will be that which corresponds approximately to Eastern territory as recognized by the Interstate Commerce Commission in the compilation of its statistical data, and to Official Classification territory as defined for purposes of classification.

In this territory there are, as might be inferred, four separate rate structures. Three of these concern local movements—within Central Freight Association, Eastern Trunk Line, and the New England territories respectively—while the fourth, and perhaps the most significant, controls movements between these more localized areas. In detail these four structures differ because of varying economic conditions and varying competitive situations faced by the carriers, but in the main it may be said that in this section the principle of distance has long been more fully recognized in rate-making than in any other part of the United States; though rates are not controlled wholly by considerations of mileage, there are, nevertheless, comparatively few violations of the distance principle and such few as do exist continue largely because certain peculiar conditions and inertia have barred their elimination.

EARLY COMPETITION IN TRUNK LINE TERRITORY

An understanding of the method of rate-making which governs the movement of distance or interterritorial traffic in Trunk Line territory can best be gained through a study of the history of the structure controlling in that area. As has been indicated earlier in a presentation of the history of carrier development, railway building for several decades was confined to the more populous sections; construction beyond the Ohio was regarded as a highly speculative venture until the latter forties and early fifties. So long as the lines built were local in character keen competition did not develop but when, through the consolidation of local lines and the actual construction of through lines, movements could be made from Chicago to one or another of the

Atlantic ports over the lines of a single railway, the time was ripe for the development of cut-throat competition. In 1869 the New York Central and the Pennsylvania established through service between Chicago and the eastern coast. In 1874 the situation was further complicated by the entry into Chicago of the Grand Trunk, a distinctly circuitous route but one actively seeking traffic, and the Baltimore and Ohio which likewise, because of its need of traffic, proved a disturbing factor. Agreements to eliminate or even measurably control competition had not been highly successful prior to this time; general economic conditions, coupled with urgent financial need, now made their observance peculiarly difficult to secure with four roads competing sharply for eastbound traffic—a traffic consisting largely of grain and live stock. Particularly was this true immediately after the panic of 1873 and throughout the industrial depression of several years which followed: even under normal conditions it would have been exceedingly difficult to control competition but, with a small tonnage available, and numerous carriers seeking it, a bitter struggle proved inevitable.

FOUR DISTURBING ELEMENTS

There were, in 1874, four disturbing elements in the situation. The first of these, and perhaps the most important, was competition between the all-water and all-rail routes. Traffic might move from western points to the eastern ports by lake and canal as well as by rail, and the grain traffic, which contributed heavily to the through tonnage, was well adapted to water carriage. This struggle was further sharpened by the fact that, if Baltimore and Philadelphia were to hold even a minor position in export trade, movements *must* be by rail instead of water, and the firm determination on the part of carriers serving those two points to remain "in the market" compelled conformance in rates from other railways serving Chicago. A second condition which added to the difficulty faced by the car-

riers operating between Chicago and the Atlantic ports and one growing out of the existence of water competition, developed with the gradual extension of the grain-producing district westward. This extension complicated both the problem of maintaining control of the grain traffic and of maintaining equitable rates upon it, because of the keen competition among the carriers serving this western grain area for advantage in the Chicago and Milwaukee markets. The railways east of Chicago were now forced to compete actively with the lake lines for eastbound tonnage, with the roads west of Chicago, competing sharply among themselves, driving a hard bargain in their efforts to secure the lowest possible rate to the Atlantic seaboard.

A third disturbing element lay in the dependence of Trunk Line roads upon the cross-line railways between Chicago and Pittsburgh for a considerable portion of the traffic originating in this territory, a dependence which was the greater because of the lack of branch mileage in this area during the period. These cross-lines were built largely by local capital and in many instances were constructed to lake ports for, in part, the express purpose of forcing from the Trunk Line roads crossed by them lower rates on the long-haul traffic originating at these local points; hence it was particularly difficult for the through lines to secure the cooperation of these local carriers in the matter of delivering tonnage to the railways instead of to lake carriers. Finally, the highly competitive situation governing distance movements in this territory resulted in unhappy conflicts and maladjustments between through rates and local rates: some scheme of adjustment was needed increasingly as the territory developed which would make possible the better coordination of local and through charges.

ADJUSTMENTS IN TRUNK LINE TERRITORY

To secure peace in the area to the eastward of Chicago and St. Louis, two important steps had to be made, the one

an adjustment among various routes and combinations of routes which would minimize the danger of future competitive outbreaks, the other a correlation of through and intermediate rates in this extended territory. Of these problems the adjustment among carriers and routes proved the more complicated. From Chicago eastward, traffic might move over all-water routes through the Great Lakes and thence through the St. Lawrence or the Erie Canal to tidewater. Or it might move all-rail, either directly over the "standard lines" or roundabout over the longer "differential lines." Traffic might also move over lake-and-rail routes, either standard or differential. And finally, movement might be made by rail and ocean, traffic moving by rail to points as far south as Norfolk, thence to destination in the north by water. Experience had shown clearly that cut-throat competition injured all and that gain was enjoyed by none; but to discover the method of adjustment which would permit each route to enjoy a degree of prosperity comparable to its economic advantage was an exceedingly difficult problem. The final adjustment of this matter resulted in attaching to various movements first class rates which now stand as follows on westbound tonnage moving between New York and Chicago: standard all-rail, 142 cents; differential rail, 137 cents; standard lake-and-rail, 129 cents; differential lake-and-rail, 124 cents; and canal-and-lake, 114 cents. Proportionately lower rates were given on lower classes, the sixth class rate, canal-and-lake, running as low as 39 cents. Differentials upon eastbound tonnage are practically the same as upon westbound. This adjustment resulted in a division of traffic largely along commodity lines: the slower routes, partially or all water, carry bulky traffic of relatively low grade, such as grains, ores, coal, cement, and heavy iron products, while higher class goods more largely by rail.

The correlation of through and intermediate movements in Trunk Line territory was accomplished by the application of what may be characterized as a distance tariff in

theory, though it tends to be a distance-group tariff in practice. Evidence indicates that as early as 1870 certain points intermediate to Chicago and New York were given rates which constituted a definite proportion of the Chicago–New York rate; but a wide application of the percentage scheme was not made until 1876 when the MacGraham scale, so-called because devised by a Pennsylvania rate clerk of that name, was generally adopted by Trunk Line carriers to control the relationship between through and intermediate rates upon eastbound traffic at competitive points. Under the original scale, rates from Chicago eastward varied directly with distance, but three years later it was found desirable to modify this feature. This general plan, with certain changes, still controls rate-making to intermediate points, applying to both west- and east-bound traffic.

From a railway standpoint the basic weakness of the original plan lay in its neglect of the constant terminal costs which attach to each shipment: in applying upon a movement from New York to a point 60% of the distance from New York to Chicago but 60% of the New York–Chicago rate, a portion of the terminal charge was thrown off, despite the fact that terminal costs are relatively the same, regardless of distance. In the revised plan, therefore, it was purposed to correct this defect and thus increase revenue. To accomplish this end a definite charge was assumed, in practice 25 cents, upon which, as a basis, governing percentages were to be computed. Of this assumed 25 cent charge, 6 cents was set aside to cover terminal costs, thus leaving 19 cents to be prorated upon the basis of distance. Therefore, if a point be located 60% of the distance from New York to Chicago, the portion of the assumed rate to this point from Chicago would be computed by taking 60% of 19 cents, the movement charge, and adding to that figure, 11.4 cents, the 6 cents previously deducted to cover terminal costs. On a 25-cent basis, therefore, the rate from New York to the point in question would be 17.4 cents. This figure, translated into terms of percentage, would be 69.6%.

Hence, if the rates on the six classes between New York and Chicago be $1.42, $1.24½, $0.94½, $0.66, $0.56½, and $0.47½ respectively, as they now are, the rates applicable upon the various classes to a point 60% of the New York–Chicago distance westward from New York would be 69.6% of the rates above given. If, at a later time, the rates applicable from New York to Chicago were advanced or reduced, charges to the intermediate point in question would still be determined by applying, to the changed rates governing between New York and Chicago, the constant percentage noted above. This system of rate-making, as already indicated, was first applied to eastbound movements only, for which competition was peculiarly keen, but so successful was its operation that it was shortly applied to westbound movements also.

Were this distance-percentage principle applied rigorously, there would have been for each competitive point in Trunk Line territory a percentage either slightly above or slightly below that of adjacent competitive points, but this is not the case. Individual railway policy prompted the application of these percentages to non-competitive points and this multiplication of base points, together with a desire to eliminate long-and-short-haul violations, resulted in the substitution of a system of *group* or *zone,* in place of *point,* rates. But an examination of the boundaries of the existing percentage zones for both eastward and westward movements shows that even they have been influenced by other than distance considerations. Deviations from the absolute distance principle have resulted largely from three considerations. On westward movements zone boundaries often swing far to the westward to give highly competitive junction points the advantage of a lower percentage on westbound traffic, and on eastbound movements boundaries are generally adjusted to give the same center a further advantage. Zone boundaries also swing eastward or westward as occasion demands so that, as far as possible, each cross-line may be included in a single percentage zone; this

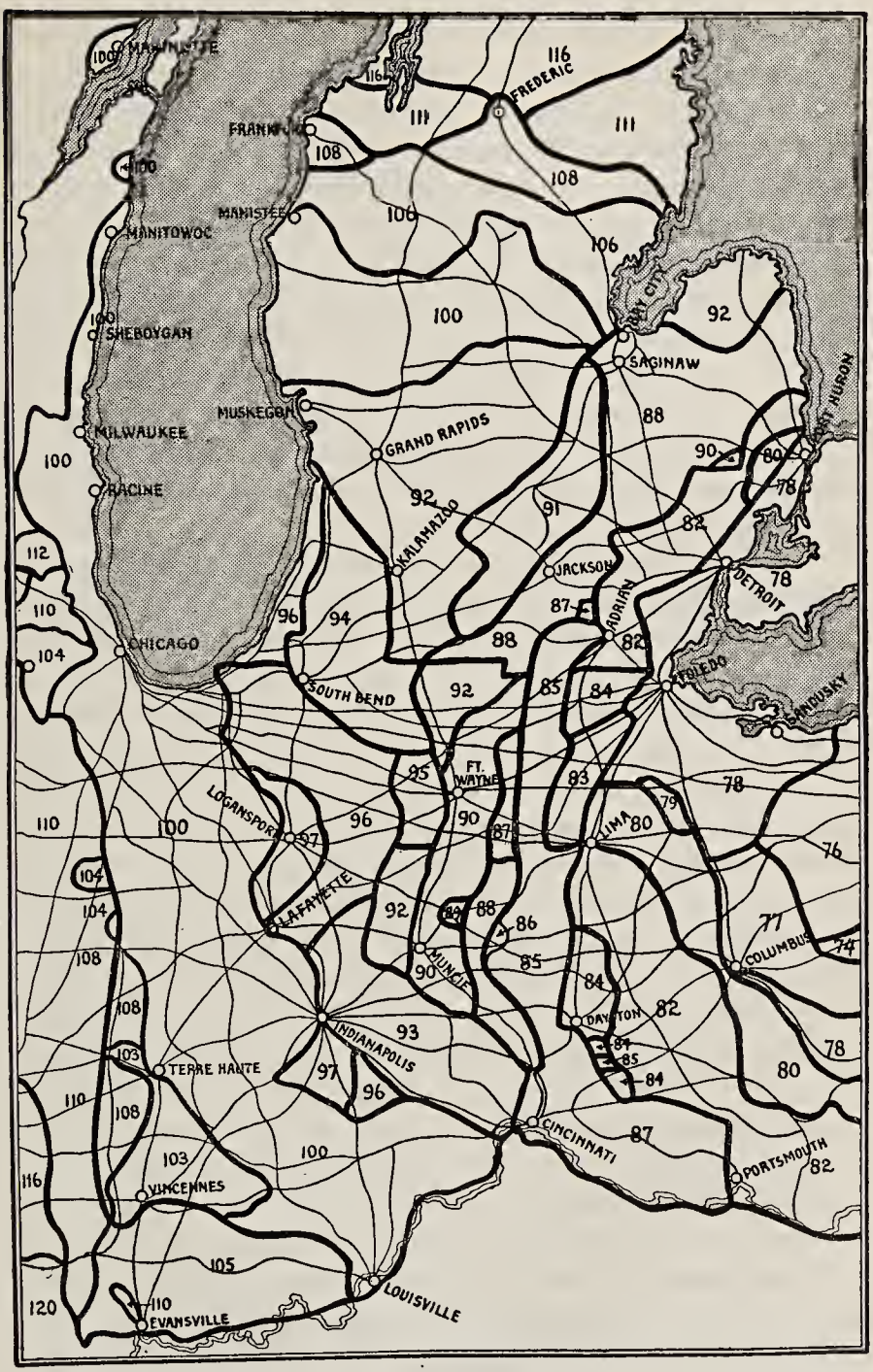

Figure 33: Percentage groups, Trunk Line territory—Eastbound

makes possible the more advantageous working of such lines both northward and southward from junctions with the east-and-west trunk lines. A third modification has resulted from the desire of railways, interested in certain production centers at which no carrier competition exists to give those centers, even though handicapped by location, an equal opportunity with others which benefit from competition and produce essentially the same commodities. As a result of these considerations, zone boundaries are far from regular, but the railroads have compensated themselves in some measure for losses resulting from numerous concessions made in zone boundaries by shifting boundaries in the opposite direction wherever the absence of competition and other modifying factors so permit.

As stated, this system of rate-making originally applied only between competitive points on interterritorial movements. In determining the rate from a non-competitive point, A, in one section to a competitive point, B, in another, there was added to the rate between the competitive point of destination, B, and C, the nearest competitive point in the opposite direction from B, a so-called "arbitrary" which was never more than the local rate, and was normally less than that governing between A and C. If the interregional movement were from non-competitive point to non-competitive point, then to the rate between the nearest "outside" competitive points, which was fixed in accordance with distance, was added not one but, rather, two "arbitraries" to determine the total rate. This complex arrangement was wholly changed, however, by the establishment of zones; all stations in a given percentage zone in Central Freight Association territory now stand upon a parity.

Many minor problems have arisen from the application of the percentage scheme to interterritorial movements, none of which seem to justify extended discussion in a general treatment of the structure, though perhaps a few brief statements may well be made. The problem of adjusting rates upon domestic movements between Boston, New York,

Philadelphia, and Baltimore in the East and Central Freight Association territory has been solved by applying to Boston certain differentials above and to Philadelphia and Baltimore certain differentials below the rate to New York. Another point deserving of note is that different percentages occasionally apply on eastbound and westbound movements, due to differences in the force of competition or to the balance of traffic. When differences exist, the percentages from the west to Eastern Trunk Line territory have generally been higher than percentages applicable westward, but the tendency has been steadily in the direction of uniformity. Even the few differences are slight, however.

Yet another problem arising in this territory grew out of the struggle among Boston, New York, Philadelphia, and Baltimore for a dominant position in the export trade. Despite its greater distance from the West, Boston demanded rates on a parity with New York upon traffic moving eastward in export trade, while Baltimore and Philadelphia, because of their lesser mileage, insisted upon a differential advantage over New York. New York, long in a dominant position because of the Erie Canal and because of early railway building to the westward, resented even the sharing of export trade with other ports. Disastrous experience with cut-throat competition and the absolute insistence of these competing points, acting through interested railways, upon a share of the export tonnage, compelled New York railway and commercial interests to consent to an arbitration of the dispute, however. Final settlement was based upon the principle of an identical through rate from Chicago to European markets, Boston being given the same rate as, and Philadelphia a differential below, New York, while Baltimore received a differential below Philadelphia. This settlement rested upon the fact that the ocean rate from Boston and New York to European ports was the same, that the rate from Philadelphia was slightly above that from New York and that from Baltimore it was higher still. This basis of settlement, first reached during early years, was

later reaffirmed and continued, finally receiving the approval of the Interstate Commerce Commission.

RATES IN CENTRAL FREIGHT ASSOCIATION TERRITORY

The system of rate-making upon movements wholly within Central Freight Association territory is of especial interest because of the peculiar degree to which distance controls. In 1917 the Interstate Commerce Commission divided this territory into six zones for rate-making purposes: zone A includes the whole of the territory lying south of the Michigan Central Railway, from Chicago to Detroit via Kalamazoo, zones B, C, and D lying wholly within the state of Michigan and successively to the northward in the Southern Peninsula.[1] Zones E and F are divisions purposed to govern the making of intrastate rates only, Zone E including all of Zone B and a portion of Zone C on the north, together with such part of Zone A as lies within the state of Michigan, while Zone F covers the remainder of the Southern Peninsula. As originally authorized by the Interstate Commerce Commission, rates upon first class shipments within Zone A began at 16 cents per 100 pounds and progressed as shown in Table 35.

TABLE 35

PROGRESSION OF FIRST CLASS RATE

Distance	Mileage Blocks	Progression of First Class Rate
50 miles and less	5 miles	1 cent per 100 pounds
Over 50 miles to 100 miles, inclusive.	5 miles	½ cent per 100 pounds
Over 100 miles to 200 miles, inclusive.	10 miles	1 cent per 100 pounds
Over 200 miles to 300 miles, inclusive.	10 miles	½ cent per 100 pounds
Over 300 miles	20 miles	1 cent per 100 pounds

Because of the lesser economic development of the area included in Zone B, rates higher by 2 cents per cwt. were allowed on first class shipments than on similar shipments

[1] Revision of these boundaries now before the Interstate Commerce Commission for consideration.

in Zone A, still higher differentials above Zone A rates applying to first class traffic in Zones C and D, respectively. To arrive at the rate applicable upon second to sixth class movements, inclusive, the so-called Disque percentage relationship was prescribed by the Interstate Commerce Commission for Zones A and B, these percentages being 85, 67, 50, 35, and 28, respectively, of the first class rate applicable in the particular zone. In Zones C, D, E, and F, rates upon the lower classes were determined by adding certain arbitraries to Zone B rates governing the same class. Interzone movements are subject to the highest scale of rates governing—a movement from Zone B to Zone A being governed by the scale of rates applicable in the former, and from Zone A to Zone C by that applicable in the latter.

Though in theory this mileage scale governs all movements within Central Freight Association territory, difficulty was immediately encountered here, as elsewhere in the United States, in applying rigidly such an exact system of rate-making. Especially was this true of interline movements. Of the departures from the scale, the two most conspicuous have arisen through the grouping of two or more points upon a single rate and the inflation of mileage, the former primarily for convenience in rate-making and the latter to "take care of competition." [1] The modification,

[1] A typical illustration of both these major departures is found in the case of interline movements over the Chicago and Alton and the Lake Erie and Western, through Bloomington, Illinois. For such movements to Boswell, Chase, and Oxford in Indiana on the Lake Erie and Western, rates from all points between Tallula and Natrona, inclusive, on the Alton—here being included Petersburg, Greenview, and Mason City—are made upon the basis of the 170-mile scale, despite the fact that, while the distance from Tallula to Oxford is 164 miles, the mileage between the "inside" points, Natrona and Boswell, is but 128. Over these same two lines inflated mileage is also well illustrated: Mason City and Frankfort are but 186 miles apart, yet, instead of the 190-mile scale governing, the 210 scale controls: the official mileage between these two points is 205. It is interesting to note, too, that the official mileage between Mason City and both Dayton and Mulberry, intermediate to Frankfort and distant only 171 and 177 miles, respectively, is 205. Such inflation of mileage is generally the result of an effort to "protect" in competitive areas the less advantageously situated line or route, the mileage of the circuitous route or, perhaps, the average mileage of circuitous and direct lines, often applying instead of the actual direct-line mileage.

upon the basis of the 15%, 25%, and 40% increases and the 10% decrease during recent years, of the rates originally established by the Interstate Commerce Commission has also resulted in a minor departure from the initial plan: the rates quoted prior to the percentage adjustment were used as bases and changed from time to time in accordance with the given percentages, so that differential relationship in Zones C and D and, consequently, E and F was slightly disturbed. Since the Disque percentages control class relationships in Zones A and B, however, no disturbance resulted there.

NEW ENGLAND AND EASTERN TRUNK LINE RATES

Since the general revision in 1918, rate-making upon movements within New England has followed the scheme used in Central Freight Association territory. Because of the distinct similarity between southern New England and that portion of south-central Michigan included in Zone B, the Interstate Commerce Commission applied to Zone A in New England, which includes Connecticut, Rhode Island, Massachusetts, and southern New Hampshire together with a small portion of lower Maine, the rates governing in Zone B of Central Freight Association territory; for Zone B of New England territory, which comprises the remainder of that section, rates 10% higher than those in force in the New England Zone A were applied. Upon local movements between zones in New England, the Zone B rate governs. However, in New England territory, largely because of the far smaller number of stations involved as compared with Central Freight Association territory, rates are published from point to point and the group plan of determining joint rates is not employed. Contrary to Central Freight Association territory practice also, under which many commodity rates constitute a definite percentage of the class rates, commodity tariffs in New England are upon a purely individualistic basis. In this area there are, however, numerous commodity rates on low-grade traffic which are,

like certain such rates in Central Freight Association territory, built essentially on a mileage basis.

As compared with the system of rate-making now in vogue in Central Freight Association and New England territories, local rates within Eastern Trunk Line territory show a conspicuous lack of system and organization. Indeed, in this area there is at present little or no conformity to the mileage principle, although years ago some of the principal lines had a mileage scale which applied upon local movements. This method, however, broke down in the face of competition and other modifying influences so that today it would be quite flattering to say that any scientific system of rate-making governs, in the sense that such systems are found in the areas immediately east and west.

In Eastern Trunk Line territory rates are made largely upon a group or blanket basis, all points within an indicated area being accorded the same rate. In many instances local points are given rates, however, based upon arbitraries above the nearest basing point. Thus rates from and to southern New Jersey are made with New York or Philadelphia as bases, and rates from and to Washington and Richmond are based upon Baltimore. The same lack of relationship exists in Eastern Trunk Line territory with respect to commodity rates as in the case of class rates, though, upon local movements of low-grade traffic, mileage scales are applied by many of the carriers. This system of rate-making in an old and highly developed territory is anomalous and appears particularly so when continued between areas in which rates are constructed upon a definite plan. It would seem, therefore, that, before many years, old adjustments which continue more because of inertia and conditions long past than because of present necessity or economic justification, will be abandoned [1] and a system of rate-making based on mileage will be substituted.

[1] On July 16, 1924, the Interstate Commerce Commission instituted formal docket 15,879, eastern class rate investigation, the primary purpose of which is to establish a system of rates in Eastern Trunk Line territory

SUMMARY STATEMENT

In summary, it may well be said that traffic moves within New England and Central Freight Association territories under tariffs which conform to the distance principle, and that a similar method governs the making of rates between Central Freight Association territory and Eastern Trunk Line territory, with certain arbitraries added to ascertain the rates from and to the West upon movements into and from New England. Despite the situation in the central portion of Trunk Line territory, therefore, it appears justifiable to characterize the rate structure of this section as essentially fair and reasonable, offering but little opportunity for that discrimination between or among places which is so characteristic of certain other structures to be later described. Long experience in this territory with tariffs which conform essentially to the distance principle justifies the conclusions drawn by Professor W. Z. Ripley—that distance should be recognized as a prime factor in rate-making and that the permanency and stability of rates and of rate relationships resulting from the acceptance of this principle is of equal or even greater value in a developed territory than that elasticity of rates which neglect of the distance factor makes possible. To accomplish full and widespread recognition of this distance principle, however, and the establishment of a system of rate-making which is entirely fair as among places, without Commission intervention, a closer degree of cooperation among carriers is necessary than was openly possible under federal statutes prior to the passage of the Transportation Act of 1920.

Southern Territory

The Southern rate structure has varied widely in principle and in practice from that found in Trunk Line territory,

comparable to the plan in use both in New England and Central Freight Association territories.

largely because of important differences in the economic and competitive conditions which governed in years past. Such differentiating economic factors were numerous during the early years of railway development in the South: population was sparse and the amount of local business relatively small; cotton, the staple crop, was marketed by the southern planter in the large centers and there he did much of his buying. Furthermore, the almost exclusively agricultural character of this section until recent years, together with an essentially one-crop system of farming, resulted in an outbound traffic of a low-grade character and an inbound tonnage of relatively high-grade character. The inbound movement was quite equally distributed throughout the year while outbound tonnage was exceedingly light except during the crop-moving period, with a resultant ill-balanced traffic.

A second factor which led to a differentiation in the methods of rate-making in Southern and Trunk Line territory was the peculiarly active character of competition in this section. Early railways in this territory were compelled to meet water competition at ocean and Gulf ports, as well as at numerous points upon each navigable stream as far up as the head of navigation. Where actual competition did not exist, the threat of potential competition often forced concessions from the roads. With the development of the railway net, keen competition appeared among these various carriers, too, and this competition was the sharper because a large portion of the tonnage was received at points served by all lines operating in a particular section. But not only did railways compete among themselves for the business of these centers: these numerous commercial centers were also competing sharply in turn for market advantage in adjacent territory, this competition of market centers further intensifying the struggle among the railways. Beyond these influences which tended to force a peculiar adjustment of rates in Southern territory, was the additional one of industrial competition between the New England–Middle Atlantic industrial area and that area lying between Pittsburgh on the

east and Chicago and St. Louis on the west. The importance of the struggle between these two industrial areas in the shaping of the Southern inbound rate structure is difficult to exaggerate; its significance in earlier years is well set forth in the Cincinnati Freight Bureau case [1] and its influence has increased steadily with the rapid industrialization of the western producing area. By such forces the Southern rate structure was shaped and, although changes in the nature of competition, in the type of agriculture, and in both the amount and character of traffic, have been marked during the past 30 years, the structure which developed out of early conditions has persisted with but little modification until the past few years.

THE BASING-POINT SYSTEM

This rate structure which developed within Southern territory has been aptly characterized as the "basing-point" system. The physical possibility of goods reaching the various sea and river ports by water compelled the railways to accord them distinctly lower rates than otherwise would have been given. These ports, because of the extended coast line and the many rivers tributary to the Atlantic and the Gulf and to the Ohio and the Mississippi, were numerous. In addition to these points at which water competition forced rate concessions, there were others which had attained commercial importance prior to the construction of railways in Southern territory, points which held a dominant place in their respective sections because of the characteristic methods of handling the cotton crop. To these commercial centers, sometimes termed "gateway cities," the railways also felt obliged to make concessions in rates.

To a third group of points concessions were also made, but these concessions flowed from railway policy rather than from anything of a compelling character in the industrial or commercial situation. Two classes of points in this third

[1] 24 I. C. C. 195.

group may be distinguished, the first and most numerous, by far, being the many junction points of little or no fundamental importance which enjoyed preferential rates because of railway competition—the usual process of obtaining special concessions being that of first convincing one railway of the advantage of according lower rates, action by the one road automatically compelling others to accord the same concession. However, railway policy resulted in giving lower rates not alone to junction points but even to points at which no competition whatever existed. Railways discovered that in a territory supplied from junction points both "in" and "out" tonnage must be shared with competitors; heavier traffic at greater profit for the individual carrier frequently resulted from the extension to non-competitive points of rate privileges initially accorded only where competition existed. In consequence, the number of single-line points designated as "bases," and thus accorded special advantages, steadily increased in Southern territory.

ANALYSIS OF THE BASING-POINT SYSTEM

It is clear that competition, functioning freely, be it water, rail, market, or industrial, may force rates at competitive points below a normal level. It is equally obvious that proportionate rates cannot be made along the entire line if the solvency of the carrier is to be maintained. To put the matter concretely: water competition may force a rate from Baltimore to Savannah or to Mobile far below what might be termed the average total cost of service. Intermediate points, although handicapped in their development by the extension of lower rates to favored localities, have little basis of complaint against the railways so long as the forces are *genuinely* competitive in nature and *beyond the control of the carriers*—the protest must be lodged, rather, against the unequal economic opportunities accorded by Nature. Complaint lies only when competition serves as a mask to disguise railway self-interest; as an excuse for a

policy which is helpful to the carrier but prejudicial to public well-being. Therefore it would appear that the policy of the Southern railways of granting to points at which water competition existed, or at which there was actual likelihood of its development, lower rates than to nearby non-competitive points, was justified. Neither can serious criticism be lodged against the practice of giving, in years past, to "gateway cities" favorable treatment, perhaps even of the continuance of that practice long after economic conditions have changed. But since the existence of the third group of basing points is due wholly to the operation of railway self-interest and since the preferential position of these points, as compared with others which have been made tributary to them, represents a species of favoritism which violates every canon of reasonableness and justice in rate-making, this group should have been eliminated thoroughly and long since.

That a clear understanding of the basing-point system may be had, a somewhat detailed description will be given. This scheme, as previously indicated, involves the offering of a low rate upon distance traffic into and out of the various basing points. As traffic moves, for example, from Baltimore to New Orleans by rail, it passes successively through a considerable number of basing-points. Yet there is no assurance that, as distance increases, basing-point rates will increase—in fact, it is quite likely that basing-points located some distance inland would take higher rates than those located nearer the Gulf and subject, therefore, to a greater measure of water competition. In other words, there long existed in Southern territory, not only discrimination between basing-points and points not so favored but also among basing points themselves, a situation sometimes due to ineradicable conditions, sometimes chargeable to "railway policy." Surrounding each favored center is a territory, rates to points lying within which are "based" upon the so-called basing-point—indeed, it is this feature of the system which has given to it the name.

Under this system, rates from a distance to a station without basing-point privileges are determined by adding to the rate to the basing-point the local rate from the basing-point to point of destination. To a comparatively low through rate is added, then, a characteristically high local rate; the lowest combination governed—and this practice was followed whether the point of destination lay beyond the basing point or was located on the transporting line *between the point of origin and the basing-point in question.* In the former case, there is a violation of the principle that the rate per ton-mile should diminish as the length of haul increases, but it is in the latter case that the peculiar unfairness of such a scheme of rate-making appears: intermediate local points are compelled to pay a rate equal to that charged for a longer movement, *plus an abnormally high local rate for a back haul which is never made.*

PLACE DISCRIMINATION JUSTIFIED BY RAILWAYS

This practice the railways justify, of course, upon the ground that, did no basing-point exist, a rate equally high or even higher would apply to the local point; although there is an element of discrimination, the carriers contend that the local point enjoys, because of the extension of "base" rates to a nearby center, a lower total charge than would otherwise apply. The general truth or falsity of this claim must be examined in each specific instance; no general conclusions are possible. But certain it is that such a system of rate-making is beneficial to the few points and disadvantageous to the many. And certain it is also that, if rates to the basing-points were higher, a lower scale of local rates might apply at non-competitive points and yet financial stability be maintained. Furthermore, with the rapid industrial development of the South and the diversification of its agricultural interests, the amount of local traffic has increased greatly; if accorded reasonable rates future increases in tonnage should be even more rapid, all of which

will vitiate largely and progressively the claim that light local traffic justifies a high level of local rates.

It was largely as a protest against the Southern basing-point system with its favoritism and discrimination that the Long-and-Short-Haul Clause of the Interstate Commerce Act of 1887 was included. As will be shown later in a more detailed way in connection with the study of early federal regulation, judicial interpretation so weakened the clause that it failed in its purpose; in consequence, it was not until 23 years after the passage of the original Act that the Interstate Commerce Commission was clothed with sufficient power to deal effectively with the situation. For several years following 1910 the Commission confined its efforts in Southern territory to the elimination of the crasser instances of place discrimination which rested primarily upon railway policy, but in 1914 it took the initial step toward a general revision. It is now engaged in a study of the entire Southeastern rate structure which will undoubtedly result in a thoroughgoing revision. Under this revision there promises to be a general application of the distance principle and the retention of the "basing-point" system only where competition of a type beyond the control of the Commission actively functions. In short, active water competition appears to offer the sole justification which will be recognized by the federal body for wide variation from the distance principle by the carriers.

"IN" RATES THE MAJOR PROBLEM

For many years the South, in dealings with the "outside," sold raw materials and purchased finished products. Because of this, rate-making *into* the South has been more difficult than upon outbound traffic; low-grade commodities could move outward only under low commodity rates. The rail lines which serve the New England–Middle Atlantic area are compelled to meet active and largely unregulated water competition between the North Atlantic ports from

Boston to Baltimore and the South Atlantic and Gulf ports from Norfolk and New Orleans. Rivalry between rail and water routes and between all-rail and water-and-rail routes forced lower rates at competitive points upon shipments from the North into Southern territory than otherwise would have been accorded. Though it should be noted that rail lines have not been compelled to "meet" water rates entirely; it is generally more convenient to ship by rail than by water—few industrial or commercial concerns have water-front locations, and shipments by rail are handled in shorter time. Furthermore, the nature of certain commodities is such that they cannot well be shipped by water. Because of this preference for rail movement a differential has been maintained between all-rail and water or water-and-rail rates, this all-rail differential to Atlanta from Baltimore long being from 12 cents, first class, to 5 cents on sixth, though more recently it has been reduced slightly, the first class differential now being 10 cents.

Just as certain adjustments were necessary among important Atlantic ports in Trunk Line territory on eastbound and westbound movements, so it became essential to fix the relationship of Boston, New York, Philadelphia, and Baltimore on movements into the South. This adjustment accorded Philadelphia and New York equality in the Southern market with fixed differentials over Baltimore. From Boston, still further distant, a fixed differential above the New York–Philadelphia figure was prescribed. Such differentials, it may be added, apply not only to these specific points but also to all other points which take Philadelphia, New York, and Boston rates. From inland points in the New England–Middle Atlantic district, rates to the South have been essentially local rates to Boston, New York, or Philadelphia, plus the fixed differential above the Baltimore–Atlanta rate. In a recent decision, however, the Commission prescribed rates into the Mississippi Valley territory from the Virginia Cities instead of from Baltimore, and the same base was utilized for rates into the Carolina territory. Yet

in the proposed revision of Southeastern rates Baltimore is suggested as the base.

RATE ADJUSTMENTS INTO THE SOUTH—EAST AND WEST

The position of the Baltimore-Atlanta rate in the South has long been such as to give it in this section a significance comparable to the Chicago–New York rate in Trunk Line territory, though its use has been quite different. Its importance has been the result of the preeminence of Atlanta. Prior to the advent of the railway, that city was an important commercial center: it was and continues to be the outstanding "gateway city" of the South. Furthermore, it is strategically located at the southern tip of the Appalachian Mountains; practically all railways from south to north and from east to west pass through it. In consequence, it is the outstanding railway center of the South. Historically a significant point, its location promises to maintain its dominant position in any system of rate-making applied throughout this territory. Because of competitive conditions, however, there have been grouped with Atlanta upon a common rate a portion of eastern Tennessee and practically the entire state of Georgia. To this area, the Atlanta Common Point territory, the Baltimore–Atlanta rate applies, and rates to all points beyond, as well as to certain areas lying between Baltimore and Atlanta, bear a relationship to the Baltimore-Atlanta rate.

For many years the significance of the Baltimore-Atlanta rate, however, was not confined to its controlling influence over rates from northeastern United States into the South. Because of the sharp competition which developed between the two great industrial sections of the United States, railways serving the South on the west of the Appalachians demanded a rate adjustment which would permit them entry into territory about Atlanta and beyond. To stabilize such competition the Baltimore-Atlanta rate was applied for many years on shipments from all the so-called Ohio River Cross-

ings, between Cincinnati and Cairo, to Atlanta without regard to the distance involved. The blanket application of this rate to all these Crossings had for its purpose the equalization of traffic opportunities among the Southern roads serving at these various points. Upon shipments moving into the South from north of the Ohio a further adjustment was made, the rate to Atlanta from beyond the Ohio being the local or proportional rate to the nearest Ohio River Crossing plus the Crossing-Atlanta rate. And this combination governed, whether traffic actually moved through the nearest Crossing by which the rate was determined or moved through even the most distant of these Crossings. This adjustment was purposed to equalize the competition among carriers north of the Ohio just as the placing of all Crossings upon a parity to Atlanta accomplished that purpose south of it.

The establishment of the same rate from the Ohio River Crossings and from Baltimore to Atlanta gave western industries a partial opportunity in the South, yet the advantage still lay with the New England–Middle Atlantic region: the differentials applied to traffic from Philadelphia, New York, and Boston were distinctly less than the local rates applicable from mid-western industrial centers to the Ohio River Crossings. This advantage, nevertheless, the industrial East insisted upon holding, declaring that the economic possibility of water movement justified more favorable treatment, despite the greater distance. During the past several years, however, various factors have disturbed this adjustment between Baltimore and the Crossings, the latter now enjoying an advantage. As among the upper and lower Crossings themselves a further adjustment has been made: into Atlanta subterritory, which comprises Georgia and Florida essentially, the Crossings are on a parity; into Montgomery subterritory—eastern Mississippi and a major part of Alabama, Louisville and Crossings to the west enjoy a substantial advantage over the Crossings eastward because of lesser distance. Traffic from St. Louis

into the South moves under a differential above the nearby Crossings.

DECLINE OF RIVER TRAFFIC

As previously stated, river traffic was important during the formative period in the development of the Southern rate structure. During the last 30 years, however, river traffic has declined rapidly—indeed, except for a relatively small amount of low-grade tonnage handled between points on the Mississippi River from St. Louis and Cairo to New Orleans, this type of water competition has practically disappeared. Its impress, nevertheless, continued upon the Southern rate structure long after the boats had disappeared and nowhere was the force of "the dead hand" more clearly evident than along the Mississippi where "river town" rates remained upon a much lower level than rates to points otherwise similarly located. During the years of actual river competition between St. Louis and points on the Mississippi, rates to river ports were, of necessity, much lower than to points inland. This relationship persisted largely because of carrier inertia and the insistence of favored points, rather than because of the fear of renewed river activity if the railways put rates upon a "dry land" basis. The Mississippi River is barely a potential competitor rather than an active one; despite efforts on the part of the government to improve not only this but other inland waterways and to stimulate their use in the movement of tonnage, there is little promise of an effective "comeback" in the face of any scale of rail rates not too high to receive the approval of the Interstate Commerce Commission.

RAPID CHANGES IN SOUTHERN RATE STRUCTURE

Although the basing-point system served long throughout the entire South, the disappearance of inland water competition, changes in economic conditions, and the increased

powers of the Interstate Commerce Commission have combined to force changes in the rate structure for each of the three rate areas in this section. Rates into the Carolina territory, which lies south of Trunk Line territory proper, east of a line running roughly from Roanoke through Knoxville to Atlanta and north of a line from Atlanta through Augusta to Charleston, have already been revised: that area has been divided into zones and tariffs made which are in accord with the distance principle. Rates into this territory from the Northeast are determined by adding differentials to the rate from the Virginia Cities, and distance is also a fundamental consideration in fixing rates into this territory from the various Ohio River Crossings. Material changes have likewise been made recently in rate-making into Southeastern Mississippi Valley territory which lies, roughly, west of the Appalachians and of a line through Chattanooga and Birmingham to Pensacola. That the Commission regards water competition in the lower Mississippi Valley as negligible is clearly shown by its recent action in placing all rates in that area upon a "dry land" basis. Rates from St. Louis and Louisville into Memphis stand upon a parity and the rates from those points to other destination groups in the southeastern Mississippi Valley are determined by adding differentials to the Memphis rate. Furthermore, rates were fixed from the Virginia cities to points in this area and these rates prescribed as the maximum charge to intermediate points—which resulted in numerous reductions in intervening territory. The Commission also prescribed the percentage relationship of the lower classes to the first class rate named and fixed the differentials, first class, over the Virginia Cities tariff which are to apply on traffic from the Northeast—14, 25, and 33 cents respectively for Baltimore, Philadelphia–New York and Boston. The effective readjustment of rates in the Southeastern territory, which comprises the remainder of Southern territory, presents greater difficulty, because here it is that water and industrial competition function most actively:

in this area have developed some of the most complex problems of rate adjustment to be found in the entire United States. Yet an investigation of broad scope has been in progress during the year past which has as its avowed purpose the complete revision of the Southern rate structure. This revision, which promises to recognize distance as a fundamental factor, both upon movements into and within Southern territory, will, among other things, ignore water competition in so far as possible, provide for rates which are the same in both directions, and require a uniform percentage relationship of classes to the end of burdening each type of traffic fairly and facilitating further movement toward a uniform classification for the country as a whole.[1]

RATE-MAKING WITHIN THE SOUTH

Thus far discussion has been confined essentially to distance traffic moving into and out of the South. A brief statement, however, should be made concerning rates upon traffic moving within Southern territory. These local rates, intrastate and interstate, have been modified markedly by state regulation; in part as a result of this control and in part because of the lesser influence of competition upon such inland and, in general, shorter movements, local rates within the South have been more in accord with the distance principle than inbound and outbound rates. Yet, as in the case of interstate movements into the South, the basing-point plays a role of some importance with certain resultant long-and-short haul violations. These departures from the distance principle are occasioned largely by the competition of markets, though in a few cases water competition functions actively even in the determination of rates for short movements. The general level of rates is noticeably high through the South, a situation which the railways have justified in the past upon the basis of light and badly bal-

[1] *See* tentative report of I. C. C., Order 13494, *Southern Class Rate Investigation.*

anced traffic, both as to season and direction, a justification rapidly losing its force. Because of economic changes and because intraterritorial traffic in Southern territory is far less influenced by competitive factors beyond railway control than are movements into that territory, the obstacles to a lower level of rates upon local movements, built essentially upon a distance basis, do not seem to be such as to long delay marked progress in that direction.

PUBLIC REGULATION A HELPFUL INFLUENCE

In the foregoing discussion of the Southern rate structure it might appear that the basing-point system of rate-making developed through the cooperation and desire of the carriers serving that territory. An examination of the history of this development shows clearly, however, that such was not the case. Indeed, as early as 1880 an effort was made through the instrumentality of the Southern Railway and Steamship Association to establish tariffs in accordance with the distance principle. To this plan representatives of most of the important lines agreed, but the opposition of others, concerned primarily in serving more fully individual and selfish interests, blocked a movement recognized, even at that early date, as desirable in view of changed conditions. The unwillingness of certain carriers, among which the Louisville and Nashville was always outstanding, to modernize a rate structure grounded upon custom and individual self-interest rather than upon a basis of fact and broad public policy, prevented a much-needed change for many years. Moreover, that unwillingness stands as a clear proof of the ineffectiveness of voluntary action in remedying long-standing and recognized abuses. Only through positive action on the part of the Interstate Commerce Commission, under the various Acts purposed to regulate commerce, have such needed changes been effected in the scheme of rate-making into, out of, and within Southern territory, as to eliminate unreasonable place dis-

crimination. And place discrimination is the essence of the basing-point system—a type of preference characteristic of the old Southern rate structure and there found in aggravated form.

The complicated and, often, seemingly illogical rate structure of the old South illustrates splendidly the results of active competition of every type, further aggravated by railway self-interest. At present the old system is being reconstructed in accordance with those principles which reason and experience have shown to be in public interest. In other sections the rate structure has largely taken form but in this the student has the peculiar opportunity of witnessing a sharp transition from old to new. Here, clearly, is an entire system of rates "in the making."

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XXV

RATE-MAKING IN WESTERN TERRITORY

Diversity of conditions. Western Trunk Line territory: Chicago–St. Louis rivalry; the inter-river rate; Twin City adjustment; other relationships established; rates within the area. Summary statement. Trans-Missouri territory: the competitive situation; Common Point rates; other rates within territory; outbound rates. Evaluation of the structure. Southwestern rate structure; rates into and within Texas; inadequacy of the rate level in the Southwest and federal interference. Transcontinental rates: early competitive situation; discrimination against Intermediate territory; zoning order of 1911 and modifications. Present Transcontinental rate situation, traffic westbound and eastbound. Probable developments in this area. General conclusions regarding freight rates. Passenger rates.

Western territory, as might be expected in view of the tremendous extent of that portion of the United States to the westward of Trunk Line and Southern territories, includes areas of widely diverse character, physically and economically. Within this territory lie highly developed agricultural and industrial sections and within it also are the remnants of the American frontier; here are broad plains and impassable mountain barriers, fertile prairies and arid, rocky wastes. But not only are conditions in Western territory diverse; in the newer and less developed sections rapid economic changes are in progress, with the consequence that the old rate structures, so clearly the result of past development and evolution, are steadily undergoing further change.

Western Trunk Line Territory

Due to physiography and to the course of economic and railway development, four definite rate structures have evolved in Western territory—Western Trunk Line, Trans-Missouri, Southwestern, and Transcontinental. First among these to develop and first to be encountered in moving westward from Central Freight Association territory

is the Western Trunk Line structure. The area within which this structure governs lies west of Lake Michigan and a line from Chicago through Peoria to St. Louis, south of Lake Superior, and east and south of a line from Duluth through the Twin Cities to Sioux City, thence via the Missouri River to St. Louis. Traffic movements here, as elsewhere in Western territory, are governed by Western Classification. The territory itself is one of the most prosperous of the United States, with highly diversified farming and a rapidly developing industrial life. In it competition has functioned actively: rivalry among markets has been, perhaps, the principal factor, but, coupled with it has been traffic competition among the carriers themselves. So keen, indeed, has been the struggle in this area that, on the whole, it cannot properly be said that any true *system* of rate-making exists—rather, rates are the result largely of a series of adjustments among competitive points and competitive railways, with the equalization of markets in particular sections the ultimate goal. And, despite the economic "ripening" of the area, as well as progress in railway cooperation, competitive forces permit little change; even that little must be gradual.

The earliest and most difficult problem of adjustment here arose between Chicago and St. Louis. Upon the basis of rate-making from the East, the source during early years of a large proportion of the goods marketed in the Western Trunk Line area, Chicago enjoyed a distinct advantage over its rival. To enable St. Louis to participate in the business of this section upon relatively equal terms with Chicago, it was necessary that the former city be given a compensating differential below Chicago upon traffic to points north and west. Furthermore, because the business of the so-called Missouri River Crossings, lying between Kansas City and Omaha, was of considerable significance, a further adjustment was made so that goods moving westward to one or another of these Crossings might move through either Chicago or St. Louis upon substantially the same rate.

THE INTER-RIVER RATE

Another interesting feature of the Western Trunk Line structure appears in the construction of rates between the Mississippi and the Missouri rivers. During early years lines operating westward to the Mississippi stopped there; shipments beyond were made over connecting lines. The custom of constructing rates, therefore, upon the basis of the rate to, plus the rate beyond, the Mississippi River arose. Traffic moving to the Missouri River might cross the Mississippi at a number of points between St. Louis and Dubuque. But, since St. Louis then enjoyed a lower percentage on westbound traffic than did other Mississippi River Crossings, carriers reaching the Missouri River by way of other points than Chicago and St. Louis found themselves handicapped in competition with the carriers serving through those centers. To protect the interest of these roads, the same rates that governed traffic moving through Chicago and St. Louis were made applicable via the lesser Crossings, upon traffic moving from the east to Missouri River points. To avoid another struggle, otherwise inevitable, among the carriers operating between the two rivers, a further compromise was reached. In accordance with this agreement the same rates govern inter-river shipments between all Mississippi River Crossings, St. Louis to Dubuque inclusive, and all Missouri River Crossings, Kansas City to Omaha inclusive, this principle applying both to westbound and eastbound traffic. In making this adjustment of inter-river rates, the charge for the least distance, that of 196 miles from Hannibal to St. Joseph, was used as a base—60 cents prior to recent increases.[1] The divergence of distances included under this uniform rate may perhaps be more fully appreciated when some of the principal mileages are given, the shortest mileage between St. Louis and Kansas City being 277, between St. Louis and Omaha 302,

[1] This rate, as a result of the 25% and 35% increases and the 10% decrease, now stands at 91.5 cents, first class. The proportional rate, first class, is 83.5 cents, for the inter-river movement.

while the distance from St. Louis to Omaha via the Missouri Pacific is 488 and via the Illinois Central through Freeport and Dubuque, 703 miles.

THE TWIN CITY ADJUSTMENT

A third important competitive center in Western Trunk Line territory at which and in behalf of which additional adjustments in rates were compelled was Minneapolis–St. Paul. This center is accessible from the East by way of the lakes through Duluth; it is also served by Canadian rail lines and by rival rail routes which lie wholly within the United States. Traffic to the Twin Cities over the all-American rail lines may, furthermore, move through either Chicago or St. Louis. In adjusting the rate to Minneapolis–St. Paul through Chicago it was necessary to make a lower rate upon through traffic from the East than upon local business from Chicago, to take care of lake and Canadian rail competition. The local rate between these two centers was fixed at 75% of the Chicago-Omaha rate, while the through rate, via Chicago, was obtained by adding 40 cents and lesser amounts upon first and lower class traffic. Since the Twin Cities might also be served by St. Louis over rail lines which did not reach Chicago, it was necessary to make an adjustment between Chicago and St. Louis to this northern center, the final basis reached being the assessment of a charge from St. Louis to this northern center 5% above the Chicago–Twin City rate. Then, of course, there appeared an insistent demand upon the part of the Twin City interests for participation in the trade of the Upper Mississippi Valley.

OTHER RELATIONSHIPS ESTABLISHED

The final adjustment among these three large centers to the Missouri River gives the Twin Cities an advantage over Chicago upon local traffic as far south as Omaha, where the two stand upon a parity. St. Louis, on the other hand,

enjoys an advantage over Chicago and the Twin Cities from Kansas City to Omaha, and stands upon an equality with Chicago as far north as Sioux City. In brief, then, as among these three centers, it might be said that the adjustment reached gave the advantage upon direct shipments to the Twin Cities in certain areas, and to St. Louis in others, while in certain sections Chicago enters the market upon a rate parity with one or the other of the two principal competing points. This statement, however, minimizes unduly the position of Chicago, the apparent disadvantage suffered by it from higher rates into particular sections being offset largely by the lower rate applicable to Chicago from points east. Therefore, it is perhaps more accurate to say that certain small areas have been given into the control of the Twin Cities and of St. Louis while in the major portion of the territory lying between the western rivers and in the cities upon the Missouri, Chicago operates on an equality with one or another or both of its major competitors.

With the further development of trade in Western Trunk Line territory, other adjustments were made. Westbound, Peoria was accorded a differential under the Chicago rate while to Memphis was given the same rate into Kansas City as applied from Chicago, with a fixed differential above Chicago to other Missouri River Crossings. From Cairo the rates to Missouri River Crossings lying between Kansas City and St. Joseph were made on a parity with Chicago, while from Nebraska City north to Omaha another fixed differential was applied. Milwaukee, enjoying the same rates from the East as Chicago, was placed upon the same basis in western traffic. In these adjustments there have been few changes in recent years, perhaps the most important being an increase in the Memphis–Kansas City rate above the Chicago–Kansas City rate.

Rates from the East and South to those points in Western Trunk Line territory which are not designated as river crossings are built, on the whole, upon the basis of arbitraries and percentage relationships. Interstate rates to points in Wis-

consin are built upon the basis of Chicago, Milwaukee, or St. Paul rates, with certain fixed arbitraries added. Duluth participates in Minnesota and Wisconsin trade upon the basis of agreed arbitraries under and above St. Paul. Interstate rates into Iowa are based essentially upon the Des Moines rate, this Des Moines rate in turn growing out of a series of relationships. In its determination the basic factor is the rate governing between St. Louis and St. Paul, the St. Louis–Des Moines charge bearing a definite relationship thereto, while the Chicago–Des Moines rate is based upon the St. Louis–Des Moines charge.

RATES WITHIN AND OUT OF THE TERRITORY

The rates on interstate movements within the territory tend to increase steadily with distance, though competition compels the blanketing of certain points to escape long-and-short-haul violations. Intrastate commodity rates also tend to increase with distance, and class rates are largely upon a mileage basis or a mileage-block plan. The close conformance to distance on interstate movements has resulted largely from railway policy and a desire to escape federal interference, but the rigid adherence to the distance basis within the states is the direct result of state regulation. The level of intrastate rates here, however, has not been unreasonably low within recent years, so the railways have had little ground to complain against state policy.

The problem of rate-making upon outbound tonnage in this area has been more simple than that of rate-making upon inbound shipments. A large, though diminishing, portion of the outbound tonnage, which consists principally of agricultural products, moves upon commodity rates that are determined by world factors rather than local. The bulk of such high-grade traffic as originates in this territory moves relatively short distances for use in the western Mississippi Valley. Rates upon such traffic accord closely with the distance principle and little complaint has been directed

either at the method of rate-making or the level of rates.

Perhaps one remaining feature of this Western Trunk Line structure which deserves mention is the Common Point character of many of the rates governing. The St. Louis rate applies not only to St. Louis but also to a group of towns in Illinois and Missouri adjacent to St. Louis while the Omaha rate applies for a considerable distance eastward and the Des Moines rate to a large area in central Iowa. In other words, rates in this territory are group rates rather more than point rates, especially on "in" and "out" tonnage.

SUMMARY STATEMENT

Summarizing the situation in Western Trunk Line territory, it may be said that the entire rate structure has been built, not upon the basis of any governing principle, but rather in such a way as to equalize market opportunities among important centers. The method employed in equalization involves the use of percentage relationships supplemented by arbitraries, rather than a general percentage arrangement as in the Trunk Line area, and the entire structure stands as clear evidence of the tremendous force of market competition in the determination of charges throughout a large and populous area.

Trans-Missouri Territory

Although rates into a considerable territory beyond the Missouri River are published by the same body that publishes rates for the Western Trunk Line area, both the nature of the rate structure here found and its historical development justify separate treatment. The method of making rates west of the Missouri River and relationship which those rates bear to others, particularly rates from the east, will therefore be presented next.

This territory includes the tier of states from Kansas northward as well as the western portion of Oklahoma, the Panhandle of Texas, eastern New Mexico, the major part

of Utah, southern Idaho and all of Colorado, Wyoming and Montana. Railway and economic development in this area proceeded westward from the Missouri River in the south and from the Twin Cities in the north. A system of rate-making, therefore, by which charges on movements beyond the Missouri River and the Twin Cities represent the sum of the rates to the river or to the Twin Cities, respectively, plus the local rate beyond, is to be expected. In fixing these rates competition of various types has had to be considered: in the north, rates from and to the east over American rail lines have to be fixed with regard to the rates charged not only by way of the Great Lakes but also by way of Canadian rail lines; in the southern portion, rail lines must compete with ocean-and-rail routes and throughout the entire territory adjustments have been necessary to equalize market opportunity. This adjustment among markets is particularly interesting, and has resulted in such striking consequences as placing Chicago and St. Louis upon an equality in the far-distant Montana Common Points.

THE COLORADO COMMON POINTS

As traffic moves westward beyond the Western Trunk Line–Trans-Missouri boundary, rates increase with distance. Certain local distributing centers of importance have developed, however, and to these somewhat lower rates have been accorded than would flow from a strict observance of the distance principle, thus causing the carriers to group numerous intermediate points upon the same rate. Further modification has resulted also from the fact that traffic may move from St. Louis directly into southern Kansas without going through Kansas City. Because of this, Wichita, for example, enjoys a rate from St. Louis which is but 80% of the combinations through Kansas City. Despite these modifications, however, it has been possible to eliminate long-and-short-haul violations in the territory as well as all other instances of glaring place discrimination.

The important gateways into the southern portion of the Trans-Missouri territory lie between Kansas City and Omaha, inclusive; the Twin Cities and Duluth are the important gateways in the north. From the Omaha–Kansas City line rates increase steadily until the Colorado Common Points are approached. In these and other similar groups of points one of the particularly interesting features of this rate structure appears. The Union Pacific operates its main line westward through Cheyenne, reaching Denver from the north. The Chicago, Burlington and Quincy, with eastern termini in both Omaha and Kansas City, also enters Denver and Cheyenne. Into Denver and Colorado Springs operates the Chicago, Rock Island and Pacific, it, too, serving both Omaha and Kansas City. Entering Denver from the south is the Atchison, Topeka and Santa Fe, and connecting at Pueblo with the Denver and Rio Grande Western is the Missouri Pacific, both of these lines from the Missouri River having Kansas City as the principal terminus. From the southward into Trinidad, adding to the complexity of the competitive situation already described, comes the Colorado and Southern with Kansas City and Gulf connections. To meet a situation which permits goods to move into Pueblo by way of Cheyenne, and into Cheyenne by way of Pueblo, as well as to meet Gulf competition at all points from Trinidad northward, the carriers have accorded Cheyenne, Denver, Colorado Springs, Pueblo, and Trinidad the same rates from points east, whether the traffic moves through Omaha or Kansas City. To these Common Points, because of the competitive situation which exists, the level of rates has been forced somewhat below that which a consideration of distance alone would fix. To avoid long-and-short-haul violations, rates from the east, instead of increasing gradually with distance, rise somewhat more sharply in western Kansas and Nebraska than otherwise would be the case, and then "flatten out," the Common Point rate thus "carrying back" toward the Missouri River Crossings for some distance and constituting a "blanket."

OTHER RATES IN THIS TERRITORY

To any station in Colorado, Wyoming, and northern New Mexico, beyond the Colorado Common Points, rates from the east approximate the sum of the westbound rate to the Missouri River Crossings, the Missouri River Crossing–Colorado Common Point rate, and the local rate beyond. Westward toward Ogden and Salt Lake City local rates also increase with distance until they meet the Utah Common Point rate which has been "carried back." The existence of this second group of Common Points is due, as in the Colorado situation, to the fact that traffic may move in from both north and south—over the Union Pacific and the Denver and Rio Grande Western, respectively. Rates to the Colorado Common Points are fixed sums above the Missouri River Crossings rates, but the rates to Utah Common Points are found by adding prescribed differentials to the rates applicable to Colorado Common Points. In the determination of the extent of this difference several factors are involved. If the total rate from the east be too high, movement by water to the west coast and inland by rail will be encouraged. Furthermore, the rate to Utah Common Points must be so related to the Colorado Common Point rate on the east and the Montana Common Point rate on the north, that Utah centers may share reasonably in the business of southern Idaho, western Wyoming, and eastern Utah. Adjustments are everywhere essential, it seems.

In the north, rates are made westward from the Twin Cities, the rate increasing with distance, with such modifications as are forced by competition, to the vicinity of the so-called Montana Common Points which include Butte, Anaconda, Helena, and Great Falls. The existence of these Common Points is due, as in the two instances already mentioned, to the fact that traffic may enter from either of two directions—from the south over the Northern Pacific or Chicago, Milwaukee and St. Paul, and from the north over the Great Northern. Just as a lower level of rates governs

to Colorado and Utah Common Points than distance would secure to them, so competition favors Montana Common Points and gives to points for a considerable distance eastward rates lower than they would otherwise enjoy. Rates into Wyoming are so constructed as to give Denver, Salt Lake City and Butte an opportunity of sharing somewhat equally in the trade of that state—again the equalization of market opportunity. Rate-making in New Mexico is complicated by the actual movement of tonnage into that territory from the east by ocean-and-rail. Therefore, upon all-rail movements from the east or central west this competitive influence operates in the determination of the rate. In northern New Mexico, Albuquerque is the important base, all-rail rates from the east rising rapidly for a distance beyond the Colorado Common Points, but for some distance east of Albuquerque the competitively fixed rate to that point has been applied that long-and-short-haul violations might be avoided. Charges westward into northern Arizona are determined by adding the local tariff to the rate into Albuquerque.

With an understanding of the development of this western area and an appreciation of the various competitive influences operating therein, the reasonable and logical nature of the inbound rate structure which has evolved appears. Equally fair, as among areas and as among particular points, is the system of rate-making upon traffic outbound from this section, a traffic consisting largely of low-grade products and moving under commodity rates which have been forced to a low level by competition. Against these outbound rates but one criticism of weight can be made, the "blanketing" of considerable areas, yet even this practice has given rise to little complaint upon the part of the shipper.

EVALUATION OF THE STRUCTURE

The one fundamental criticism made against the Trans-Missouri structure as a whole is that the general level of

rates is rather too high. The carriers have urged in justification a low density of traffic in the plains area and, in the mountainous sections, high operating costs, but it would appear that, with the rapid development of this section during the past 20 years, the carriers might well have lowered rates more rapidly than they have. Such seemed to have been the position of the Interstate Commerce Commission at least, as evidenced by its "paring down" of the general rate level in the southern portion of this territory on at least two different occasions when the problem of the general rate level was brought before it, though more recently that body denied the soundness of extending to this area of light traffic the Trunk Line percentage scheme upon such a basis as to lower charges sharply,[1] a proposal made by the Colorado Public Utilities Commission in 1918. In the northern territory, served largely by the Hill lines, less complaint has appeared against the general rate level, and in no case brought before it has the Interstate Commerce Commission approved a general reduction. In summary, this structure may be characterized as one which accepts the principle of distance in the determination of rates: variations from it have been compelled by active competition between carriers or markets and appear in the use of the group principle as supplementary to distance.

Southwestern Rate Structure

Rate-making in Southwestern territory, that area west of the Mississippi River, south of the Missouri River from St. Louis to Kansas City, and, roughly, south and east of a line from Kansas City to El Paso, is of particular interest. In this territory both rail and water competition are active: rivalry among the rail lines serving from the Mississippi and Missouri Rivers eastward to Pittsburgh through Kansas City, St. Louis, and Memphis is keen, as is competition between those lines and others which serve the Atlantic sea-

[1] 52 I. C. C. 439.

board states largely through Memphis, Vicksburg, Natchez, and New Orleans. Furthermore, there is a sharp struggle between the all-rail lines and the ocean-and-rail routes for traffic moving from the east to interior points in Texas and Louisiana particularly, even beyond. Market rivalry is also important between St. Louis and Kansas City on the north, and between those points and Memphis, Natchez, New Orleans, and so forth, on the Mississippi; between New Orleans and Houston in the south, and among numerous interior distributing centers, such as Shreveport, Little Rock, Wichita, Oklahoma City, Dallas, and Fort Worth.

In economic development this section probably has lagged farther behind the service capacity of its railway mileage than any other portion of the United States, with the result that tonnage has been light and traffic competition correspondingly sharpened. Beyond these factors, however, a peculiar system of rate-making that long governed intrastate movements within Texas, which comprises more than half of Southwestern territory, and abnormally low intrastate scales in certain other states, have made the situation peculiarly difficult and complex. As a result of the operation of all of these factors, this section long had an exceedingly interesting, though unusual, rate structure: only through federal action during recent years have its major inconsistencies been removed.

THE TEXAS INTERSTATE RATE STRUCTURE

Since rates from the north and east in the old Southwestern structure generally bore a definite relationship to Texas rates, it is first necessary to explain the method of rate-making into and within that state if a clear understanding of the development of the structure is to be gained. Because the Texas interstate and intrastate structures are so different and the conditions which gave rise to them so divergent, they are best explained separately; the relationship between the two can then be shown easily.

The origin of the interstate structure goes back to the early history of this territory. Texas was settled prior to the development of railways, but the early population lay largely within a narrow strip of country bordering the Gulf. In time, settlements were pushed toward the interior and this movement was aided greatly by the construction of railways into the great "hinterland." The population was interested primarily in the production of cotton as a commercial crop; finished products came almost wholly from the northeastern part of the United States by water to the Gulf ports, thence inland by rail. With the further construction of railways in the Middle West and Southwest, however, St. Louis and Kansas City gained access from the north to this rapidly developing area. Entry from this direction brought the mid-western industrial region into immediate and active competition with the older eastern area which had previously dominated the Texas market. Out of this competition between rail lines interested in the growth of the industrial Mid-West and the ocean-rail combination desirous of serving from northeastern United States, developed a system of rate-making which, despite certain modifications, still governs interstate movements into Texas. This scheme gave all points in Texas interstate Common Point territory, which includes, roughly, the eastern two-thirds of the state, the same rate from any given point in the United States beyond the Missouri and Mississippi rivers—in short, the rates upon a shipment from Chicago, for example, to a point such as Denison, just beyond the state line, and upon one to San Antonio or Corpus Christi far to the south, were the same. Against this anomalous situation, protests long availed naught.

TRAFFIC ADJUSTMENTS—NORTH AND EAST

To satisfy competitive demands concerning interstate movements, it was necessary to make certain adjustments among distributing centers outside of the state of Texas.

The first of these concerns Kansas City and St. Louis which have been placed upon a parity in a major part of Texas Common Point territory, not only upon inbound but also upon outbound traffic; in addition, it has been provided that tonnage from points east may move into Texas territory through either of these important centers upon the same rate. Upon traffic moving from distributing centers to the north and east of Kansas City and St. Louis, certain fixed differentials were applied, these differentials varying from 11 cents, first class, upon traffic from points in the Louisville group, and 20 cents upon movements from Chicago-Cincinnati group, to 40 cents from Cleveland-Detroit points and 50 cents from Pittsburgh points. From Memphis and New Orleans there applied into this section a differential of 10 cents below the rate governing from Kansas City and St. Louis. These various differentials have been greatly

Figure 34: Rate areas in Texas

modified by percentage charges in rates during recent years, but competitive relationships have been little changed.

"GRADED AND MAXIMUM RATES" WITHIN TEXAS

Although interesting both in nature and in its development, the interstate Common Point structure possesses none of the striking characteristics of that scheme of rate-making which long controlled Texas intrastate movements. Again, an understanding of the policy of rate determination must come from a knowledge of its history. As indicated before, Texas was settled from the Gulf; beyond was a "hinterland" of tremendous area and of almost infinite possibilities. At the head of the Texas Railroad Commission, one of the pioneer regulatory bodies of the United States, was Judge Reagan, who possessed a broad, social vision. To promote the more even development of the state, and to prevent the growth of one or two great centers which would dominate the commercial and industrial life of its people, he utilized, as the basis of the "graded and maximum" rate structure, a system of rate adjustments which had already developed out of competitive conditions within the state. This unusual structure long controlled all movements of traffic wholly within the state.

The outstanding peculiarity of this scheme was that, beyond a certain distance, traffic moved upon a uniform rate within Texas intrastate Common Point territory, this maximum distance varying with the character of the tonnage. Upon flour, hay, and grain, rates increased with distance up to 200 miles; upon cotton, to 210 miles; upon first-class commodities, to 245 miles; and upon coal, to 790 miles. Beyond these distances, rates did not vary in the eastern portion of the state. However, to the westward of the intrastate Common Point territory, which extends generally somewhat farther west than the interstate territory, lies a considerable area known as "differential territory." In that area rates gradually increased with distance beyond the maxima just

mentioned, to a maximum charge of $1.05 per cwt., first class, except on shipments between points on the Texas and Pacific, Sherman or Dallas and west, or between points on the Southern Pacific, San Antonio and west, to which a maximum of $1 applied. For the operation of this "graded and maximum" rate system any point in Texas might be taken as a center, with a result that, despite widely divergent distances from central markets and ports, agricultural and industrial development has been measurably uniform throughout the state and the population is served by a large number of distributing centers of relatively equal importance, scattered widely throughout Common Point territory. Indeed, the interstate and intrastate rate structures have so operated in conjunction as to favor, in a peculiar degree, this distribution of trade among markets; by virtue of their joint operation widely separated points, such as San Antonio and Denison, enjoyed the same rate from the mid-western industrial area, though the former lies approximately 300 miles beyond the state line, and these two centers competed, in territory lying midway between, on relatively equal terms even though such business involved a back-haul from San Antonio.

MODIFICATION OF THE TEXAS RATE STRUCTURE

The system of rate-making within Texas was wholly unsatisfactory to the carriers from a revenue standpoint, yet efforts to secure important modifications availed little: the Texas Railroad Commission was firm in its determination to make no changes in rate policy which would disturb long-standing adjustments, agricultural, commercial and trade. Nor were the carriers able to eliminate the Common Point basis of rate-making upon movements into Texas: competition was too strong. Indeed, it has been only through positive action by the Interstate Commerce Commission that the carriers have been able to avoid the extension of the Common Point area westward in response to local demands.

Early relief from the burden of the situation seemed unlikely unless some basis for federal interference with intrastate rates were found and unless the Interstate Commerce Commission turn its face against the Common Point scheme of rate-making which had evolved from carrier and market competition. That corrective action should be taken along both lines within a comparatively brief time is clearly indicative of the intention of the federal body to assist in the establishment of a harmonious system of rates which involves no unreasonable discriminations among places and imposes no undue financial burdens upon the railways.

Material modification of the Texas "graded and maximum" system resulted from the Shreveport controversy. To secure equitable treatment of dealers in Shreveport as compared with dealers located at Texas points, the Interstate Commerce Commission, after successive examinations of the situation, prescribed in 1916 a scale of class rates to govern movements from Shreveport to all points in Texas east of interstate differential territory, also a scale of differentials to be added to cover movements into that area. Commodity rate scales were also prescribed for a number of important commodities. These rate scales, class and commodity, were made the yardstick of reasonableness in that section and were, in consequence, imposed upon Texas intrastate movements despite the vigorous protests of Texas shipping interests and of the Railroad Commission of that state. As later modified and now applying to movements in that area, the class rates which apply outside of differential territory are graded up to 600 miles and class movements within that territory up to 300 miles; the familiar "blanketing" of first-class shipments beyond the old maximum of 245 miles in Common Point territory and 260 miles in differential has disappeared under a system so graded as to cover the longest possible movements within the state. Commodity rates are graded from as low as 250 miles upon flour, hay, and grain to as high as 750 miles upon horses and mules, with fixed sums prescribed, in the case of those items with low maxi-

mum mileage, for movements into differential territory. In connection with these readjustments the Interstate Commerce Commission extended interstate Common Point territory to include Amarillo, long included within intrastate Common Point area. Thus, through an extension of federal authority, the "postage stamp" character of Texas rates has disappeared and the carriers have benefited by a higher level of rates than the Texas Commission was willing to accord.

The first step in the direction of establishing rates into Texas from the north and east upon other than a Common Point basis was made by the carriers themselves which accorded to Kansas City, upon class and commodity traffic, lower rates into a considerable area in north-central Texas than governed from St. Louis into that district. The basis of this action was the greater proximity to Kansas City of points in the so-called Dallas–Ft. Worth group. The second step in the direction of breaking down the Common Point basis of making rates was taken by the Interstate Commerce Commission in 1916. Prior to that time the Commission had refused to modify the general scheme of rate-making established by the carriers, but in that year the demand for a recognition of the advantage flowing from location nearer St. Louis and Kansas City than other Texas cities gained a favorable hearing; in consequence, Northeast Texas territory was defined. Into this territory, which includes Ft. Worth, Dallas, Denison, Waxahachie, Marshall, and Paris, the carriers were ordered to make somewhat lower rates from St. Louis and Kansas City on certain commodities than to the Texas Common Points. To the cities in western Northeast Texas a lower level of rates from Kansas City than from St. Louis was prescribed: the former is approximately 100 miles nearer those cities than the latter. Further action in the direction of disruption of the Common Point plan of rate-making will necessarily follow in the wake of the Commission's steady efforts for several years past to put rates in the Southwest upon a distance basis.

READJUSTMENT OF OTHER SOUTHWESTERN RATES

Interstate rates within Southwestern territory were long such that it could be said accurately that no system of rate-making governed, though charges in that section tended to bear a direct relationship to the Texas Common Point rate. Rates to Oklahoma City represented an adjustment between the St. Louis–Wichita and the St. Louis–Texas Common Point rates, while rates to Arkansas points, such as Little Rock and Ft. Smith, were adjusted between the St. Louis and Memphis rates into Texas and the Oklahoma City rate. In southern Missouri rates tended to increase with distance out of Kansas City and St. Louis, the ever-present force of market competition operating in making an adjustment between these points. Because of both historic and actual competition in Louisiana, particularly along the Mississippi and Red rivers, rates into that state represented largely adjustments upon the basis of charges made to important river points, such as Vicksburg, Natchez, Alexandria, and Shreveport. This last-named point, lying at the technical head of navigation of the Red River, enjoys much more favorable rates than otherwise would be the case, a fact which permits it to serve as a distributing center for a considerable adjacent territory.

After a careful examination of Southwestern rates the Interstate Commerce Commission declared in 1919 that the class-rate structure in that territory was "a tangled maze of inconsistencies and incongruities" [1] and enumerated at length its many and important shortcomings. Concerning commodity rates it asserted early in 1923 that the situation was substantially the same: "There is no uniformity in these rates. . . . . Different rates apply for equal distances over different lines of the same carrier and frequently the same rates apply for varying distances over different lines of the same carrier or over lines of different carriers." [2] The only practicable solution of the problem appeared to be

[1] 55 I. C. C. 515. [2] 77 I. C. C. 473.

the application of a scale of rates, graded upon the basis of distance, to all traffic, class and commodity, and this solution of the difficulty the Commission accepted. In accord with that principle, interstate movements of class traffic in the Southwest are now generally upon the basis of a distance scale prescribed by the Commission in 1921 [1] which is graded up to 600 miles, and commodity traffic moves upon the basis of distance scales prescribed in 1923 [2] which are graded up to 800 miles. An interesting feature of these scales and, indeed, of all other rates applicable in this territory, is a provision for the addition of an arbitrary or differential to the standard rate if the shipment moves over more than one line.

Within a comparatively few years, therefore, due to positive action on the part of the Federal Commission, one of the most involved and confused rate structures in the United States has become one of the most ordered, with widespread recognition of the distance principle and a level of rates calculated to give to the carriers a reasonable return for the service rendered. Violations of the long-and-short-haul principle have been practically eliminated and trade readjustments have been made with a minimum of hardship. Positive and intelligent federal regulation has accomplished more for the Southwest in the way of securing an equitable rate structure than long years of state control and railway bargaining; in fact, it might be said that federal action has been able to undo the evils of the other two forces within a few short years—a real proof of worth.

Transcontinental Rate Structure

Within Transcontinental rate territory are included, in addition to the three Pacific Coast states, all of Arizona and Nevada, northern Idaho, and portions of Utah and New Mexico. But, since rates into practically all of Utah and New Mexico are built upon the basis of rates from points

[1] 62 I. C. C. 596. [2] 77 I. C. C. 473.

east, the real problem here involved is rate-making to points on or near the Pacific Coast and to important centers in the so-called Intermediate territory, which comprises Arizona and Nevada and those portions of the Pacific Coast states lying east of the Sierra Nevadas and the Cascades. In essence this problem is no different than those found in other sections of the United States, but in no other section has the struggle been sharper or more protracted to force a change in a method of rate-making which had evolved out of active competition and carrier self-interest.

EARLY COMPETITIVE SITUATION

Pacific Coast territory was served wholly by water during the early years of its development, either around Cape Horn or by way of Panama or Tehuantepec. With the building of the Union Pacific–Central Pacific and other later transcontinental railways, however, the Mid-West gained entry into Pacific Coast markets, formerly controlled by the New England–Middle Atlantic section. The dominance of the water carriers in the service of the western coastal area was soon challenged by the railways, the struggle being intensified by the interest of the one industrial district in rail, of the other in water, supremacy. The history of this struggle, though interesting, is too long to be given here—suffice it to say that by various methods, the principal ones being the subsidization of the Pacific Mail Steamship line and the inauguration of "special contracts" by the railways, the proportion of coast business handled by rail increased from about 25% in 1884 to 90% by 1891. Following 1885, however, the situation was complicated by the entry of the Atchison, Topeka and Santa Fe into the field as a direct competitor of the Southern Pacific, and as a representative, so to speak, of an industrial area rivaling that other served mainly by the Southern Pacific—the Southern Pacific having previously enjoyed entire control of movements into this territory by rail through its ownership of the Central Pa-

cific. Within 10 years following 1887, carrier, market, and industrial competitions had changed a system of rate-making under which class rates into the Far West varied measurably with distance to a system of which the outstanding feature was a blanket charge from all points on and east of the Missouri River to Pacific Coast terminals, this "blanket" later being extended westward to include Denver. In consequence of this situation, the rate from Denver to these western terminals was the same as the rate from Omaha, Chicago, Buffalo, or even Portland, Maine! This arrangement, justified by the carriers upon the basis of the exigencies of rail-and-water competition, controlled rate-making from this tremendous eastern area for many years after 1897.

DISCRIMINATION AGAINST INTERMEDIATE TERRITORY

The weakness of this justification for the character of the westbound rate structure is shown by several facts. In the first place, scarcely a tenth of the traffic destined to the coast had moved by water for some years prior to 1897, rates being determined by the railways and met by the water lines. Furthermore, the failure of the carriers to blanket upon eastbound movements of class traffic as well as westbound indicated clearly the "straw man" character of their argument. Again, despite the fact that rail carriers urged water competition as a basis for this blanket, terminal rates, in certain instances applied to *inland* points, yet *not* to ports *serving* those inland points. The number of stations to which terminal rates were accorded in 1914 stood at 194 for California alone, yet in 1915 the Interstate Commerce Commission could find but 18 points upon the *whole Pacific Coast* at which water competition *actually functioned.*

Although complaint lay against a system of rate-making upon westbound movements which permitted Detroit and Pittsburgh to enter the coast markets upon a parity with a point located more than halfway to the coast, as is Denver,

primary objection to the Transcontinental rate structure arose in the so-called Intermediate area. Because of the much higher economic development of the coastal area, railways from the East were interested largely in that section, and gave but secondary consideration to the great stretch of territory served by Spokane in the north, Reno in the central section, and Phoenix in the south. Indeed, throughout the past 50 years this Intermediate section has been tolerated rather than fostered by the carriers—it has been the orphan waif in the Far West. Though never enjoying an actual advantage over important coast points, these smaller inland distributing centers were once accorded the same rates as were given to the coast, but later even class tariffs to these inland centers were constructed on the basis of the rate to the coast, plus the back-haul charge. The railways tremendously increased this discrimination, too, by granting to coast terminals a great number and variety of commodity rates which were often less than a third of the class rate, while according inland centers few such rates.

Upon traffic to these inland centers not only was the *system* of rate-making a heavy handicap to their development, but the level of rates from the coast eastward was also abnormally high, thus placing a still further burden upon them. The justice of a lower inbound rate level was recognized by the Interstate Commerce Commission upon several occasions when it ordered reductions in response to protests from shippers in Intermediate territory. In the face of the heavy handicap placed upon this undeveloped area by the rate structure which long governed, it is strange that a sufficient degree of vitality persisted to make possible the constant and vigorous protests which arose from it for almost 20 years prior to 1910. But during those years the Interstate Commerce Commission felt that it lacked the power to deal effectively with the situation, and short-sighted railway policy dictated rigid adherence to this highly discriminatory, burdensome, and irritating scheme of building Intermediate rates.

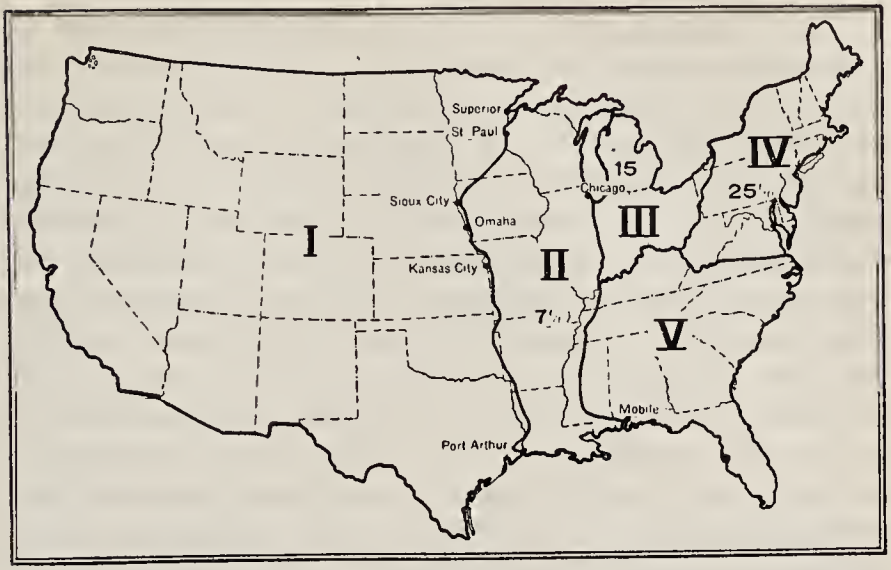

Figure 35: Zone boundaries fixed by the Interstate Commerce Commission in 1911—Westbound traffic to intermediate and Pacific Coast points.

THE ZONING ORDER OF 1911

When the Long-and-Short-Haul clause was revitalized in 1910, the Interstate Commerce Commission had before it three cases involving the adjustment of coast and inland rates—a Spokane case, a Nevada case, and an Arizona case. In its decisions in these cases it was able to utilize the new powers conferred to excellent advantage, and did so in such fashion as to change fundamentally the method of determining rates upon traffic moving into Intermediate territory from the East. Thrusting aside the fiction of water competition upon which the old discriminatory policy had rested, the Commission in 1911 cut to the heart of the problem by dealing with the rate relationships which should govern as between the two areas involved. For the determination of these relationships the United States was divided into five zones. Declaring that water competition exerted no influence upon rates to the Pacific Coast from all points within Zone I, that portion of the United States west of a line from Duluth, east of Twin Cities, Omaha and Kansas City,

to Port Arthur on the Gulf, the Commission said that no justification existed for higher rates to Intermediate points than to coast terminals; though the rate to the Intermediate point might be *equal to,* it could not *exceed* the terminal charge. For shipments originating in Zone II, which lay eastward of Zone I and west of a line from Chicago to Mobile, Alabama, the Commission recognized that there was a measure of water competition; it therefore permitted rates from this area to Intermediate territory to exceed by 7% those applying to coast terminals. From Zone III, lying eastward of Zone II, north of the Ohio River and west of the eastern boundary of the Central Freight Association territory, within which water competition functioned still more effectively, a 15% differential as against the Intermediate area was allowed. Zone IV, comprising the remainder of Eastern territory, offered the clearest evidence of active water competition and upon all shipments from this area a 25% differential applied. For Zone V, including that part of Southern territory not embraced in Zone II, no differential was fixed. In this decision no attempt was made by the Interstate Commerce Commission to prescribe definite rates, that body believing the need of the inland territory could be adequately met by a prescription of rate relationships.

MODIFICATION OF THE ORIGINAL ORDER

This method of rate determination, as laid down in Fourth Section Order No. 124, governed the movement of traffic until modified early in 1915 in Orders 205, and so forth. At this time commodities were divided into three groups, known as A, B, C. Schedule A included items seldom moving by water and upon these no lesser rate was permitted to the coast than to Intermediate points. In Schedule B were listed about 350 items which were adapted to water movement but upon which it was thought possible to maintain rates from eastern points to the western ports and to

Intermediate territory upon the percentage basis prescribed in 1911. Schedule C, contributing an important volume of traffic, consisted of commodities originating in large volume on the Atlantic seaboard and especially adapted to water movement. Upon the items listed in this schedule the railways were permitted to establish carload commodity rates from points in Zone I to Pacific Coast terminals lower than to Intermediate points provided the Intermediate rate was not in excess of 75 cents per cwt. Similarly, commodity rates might be established from Zones II, III, and IV, which did not conform to the order of 1911, provided rates to Intermediate territory did not exceed by more than 15 cents, 25 cents, and 30 cents per cwt., respectively, those governing from Zone I. With respect to less-than-carload commodity rates from the Missouri River, lower rates to Pacific terminals than Intermediate territory were permitted, provided charges to points in the latter were not in excess of $1.50 on first and second class and $1.25 on third and lower class commodities. Here again a similar privilege was extended to Zones II, III, and IV, on condition that rates to Intermediate territory should not exceed those applicable from Missouri River territory by more than 25 cents, 40 cents, and 55 cents, respectively. Later in the same year, a further modification was made which permitted the railways to charge maximum less-than-carload commodity rates from the Missouri River area to intermediate points of $1.72 per cwt., when lower rates were applicable to coast terminals. A further modification made at this time had to do with zone boundaries, movements from Gulf ports included in Zone I being regarded, for the purpose of shipments to North Pacific terminals, as located in Zone II and therefore governed by the 7% differential. These modifications of the order of 1911 were clearly the result of the quickening of water competition, which the Commission had held in its earlier decision to be a minor factor. The opening of the Panama Canal gave new impetus to water movement: potential competition became competition in fact.

THE RECENT SITUATION

This adjustment of rates continued with little change until September, 1916, when, upon a showing of diminished water competition because of Canal slides and the premium upon tonnage in trans-Atlantic service, the Interstate Commerce Commission ordered that the rates upon all Schedule C commodities should conform to the terms fixed to govern those of Schedule B as prescribed in 1915. Certain other authorizations to depart from the terms of the Long-and-Short-Haul clause were canceled at this time—westbound rates upon iron and steel from Pittsburgh and related points and, except in a minor degree, eastbound rates upon barley, beans, canned goods, asphaltum, dried fruits, and wine from California ports to the Atlantic seaboard via the Gulf ports. More important action was taken in 1917, however, when the Commission canceled all Fourth Section relief upon the ground that the influence of water competition upon rail rates between the East and the West was then negligible. Thus the entire percentage adjustment scheme was wiped out. Guidance was given the carriers in the revision of their rates in accord with the new order, the Commission suggesting that where the terminal rates were depressed below a normal level by water competition, those rates might be advanced, but that, where water competition had not forced an abnormally low level, discrimination should be removed by lowering the rates to intermediate points. As a rough yardstick of normality, the Commission suggested 80% of the class rate governing particular items. While thus requiring a marked change in western rates, the Commission recognized that water competition had not disappeared permanently; indeed, it declared "When water competition again becomes sufficiently controlling in the judgment of the carriers to necessitate the reduction of the rates to coast cities to a lower level than can reasonably be applied at Intermediate points, the carriers may bring the matter to our attention for such relief as the circumstances

may justify."[1] Thus the governing rate body recognized the impossibility of unchanging rate relationships.

In complying with the order of 1917, the railways generally placed Intermediate and coast points upon a parity, thus establishing a blanket of considerable width. Pressing for further advantage, intermediate interests attacked the adjustment as unreasonably discriminatory and sought to have the Commission order westbound commodity rates to be so "graded as to afford the intermountain territory the full benefit of its location nearer the East." That body, recognizing that there were perhaps certain commodities as to which keen competition between rail and water carriers is unlikely for some time to come, nevertheless held, early in 1921, that water competition had increased sufficiently to justify the continuance of the present policy of blanketing.[2] In turn, the railways met defeat[3] before the Commission in 1922 when permission was sought by them to make lower rates upon various commodities to the Pacific Coast terminals than to Intermediate points: despite evidence introduced by the rail lines to show that water carriers were depleting tonnage, the Commission decreed the maintenance of a rate structure which conforms to the Fourth Section. Only upon crude sulphur westbound and upon eastbound shipments of five items, routed from California to New York via rail-and-water through Galveston and peculiarly subject to water competition, were exceptions granted. It is of especial interest to note that the Commission based its denial of Fourth Section relief in the general westbound application upon grounds other than the absence of compelling water competition: it held that the transcontinental carriers had not shown that increased tonnage at the proposed lower rates to the western terminals would add to net revenue and that they had failed to show that such a policy as proposed, blanketing points of origin in the East upon terminal movements and grading them upon movements to the Intermediate territory, would not result in un-

[1] 46 I. C. C. 236. [2] 61 I. C. C. 226. [3] 74 I. C. C. 48.

due and unlawful preference to Mississippi Valley points in the one instance and Pacific terminals in the other.

WESTBOUND CLASS TARIFFS

The bulk of the tonnage moving from the East to intermountain and coast points enjoys commodity ratings, many less-than-carload commodity rates having been established. However, since there is an important volume of class traffic handled, a description of the construction of class tariffs will be given. Such a description must be brief, however, for the plan is a simple one. The area east of El Paso, Denver, and the Twin Cities is divided into eight groups which are distinguished by the letters A to J, inclusive, omitting I. Group A includes the entire Atlantic seaboard and the territory east of Buffalo, Pittsburgh, and a line running, roughly, from Kenova southward to the Gulf near Cedar Key, Florida. Group C has as its western boundary the Indiana-Illinois state line, the Ohio River to Cairo and the east bank of the Mississippi to the Gulf, and as its eastern boundary a line running from Toledo to Pensacola. Be-

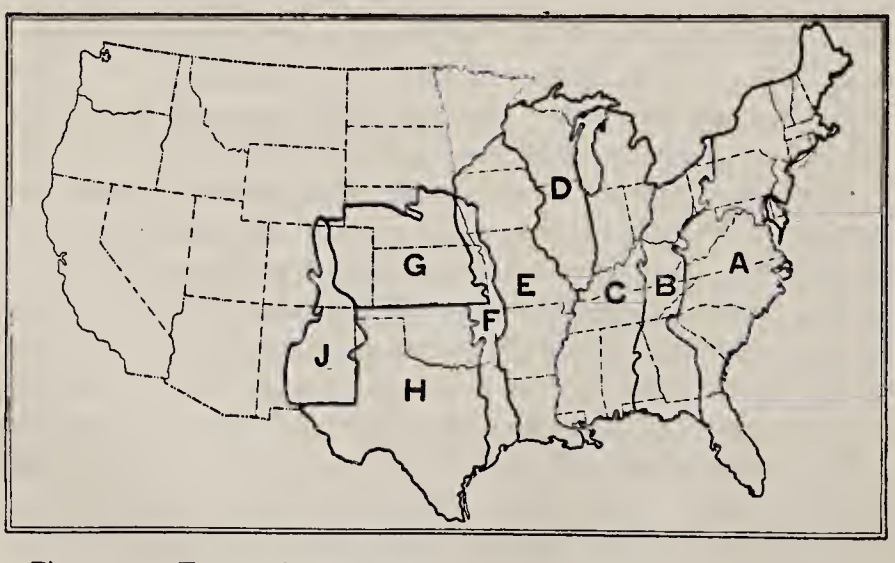

Figure 36: Trancontinental territorial groups—Westbound class traffic

tween groups A and C lies group B territory. Group D includes Illinois, Wisconsin, and Upper Michigan; group E, southern Minnesota and a major part of Iowa, Missouri, Arkansas, and Louisiana; while F embraces Missouri River points from Sioux City south and a narrow strip of territory southward to the Gulf, largely eastern Oklahoma and Texas. In Group J lie Colorado Common Points and a portion of New Mexico, with El Paso lying to the west of H and south of J. From these groups rates to Pacific Coast terminals increase as progress is made eastward, the first class rates from J and A territories being 366 and 555 cents, respectively, on movements to California points. Rates from groups G and H are somewhat higher to the north Pacific terminals than to the southern, because of the greater distance. Interior western coast points take the same rates as the terminals, and to Intermediate points a somewhat lower level of rates applies than to the coast. In brief, westbound class rates in this area may now be said to be upon a group-distance basis which involves no unreasonable discrimination.

TRANSCONTINENTAL EASTBOUND RATES

Eastbound rates from Transcontinental territory have given rise to no such acrimonious disputes as those upon westbound tonnage. Class rates on traffic moving from this area are much like those upon westbound tonnage, except that the position of Intermediate territory is less favorable than upon westbound traffic. The great bulk of the eastbound tonnage is moved upon commodity tariffs, however, which "blanket" large areas, this blanket often extending from the Atlantic seaboard to the eastern slope of the Rocky Mountains. In this case, rates have been made which would permit the western producer to enter the market against local or foreign competition and these rates have then been carried westward so as to blanket more than half of the United States. In contrast to the westbound rate

structure which is today in no small measure one of the Commission's making, the eastbound has been the outgrowth of cooperation between the railways and the shipper: so satisfactory has it been to these parties and to the public that it has never been seriously challenged.

PROBABLE DEVELOPMENTS IN THIS AREA

The future of the rate situation in Intermediate and Pacific Coast territory is problematical. Tending to increase the disparity between the coast and Intermediate rates are two factors. The reestablishment of normal conditions upon the water has made competition from this source keen and this will tend to drive rates to Pacific Coast terminals to a very low figure. The second factor operating will be the insistence of the industrial area lying between the Missouri River and Pittsburgh for equal opportunity in the Pacific Coast markets and this cannot be enjoyed except as rates are made from that area upon a parity with rates by water from the East. Tending to lessen the disparity between rates into these two territories from the East are four influences. With the development of the Inland Empire and its consequent attractiveness as a market for both raw material and finished products, the railways and the mid-western industrial area served by them will find it increasingly to their advantage to lessen the burden of discrimination resting upon that territory; as early as 1909 the Interstate Commerce Commission declared that, during the decade then closing, "every condition which would make for lower rates has come into existence." Operating in the same direction is the gradual expansion of the railway net and the appearance of lines interested in the development of certain sections of this Inland Empire, rather than those older areas which have enjoyed advantages in the past. A third factor which will tend to change this situation is the growing power of this inland area and consequent increased pressure which it will be able to exercise upon

the railways. In 1902 Commissioner Prouty declared, "No interior towns of sufficient strength exist to insist upon a change in this policy (high intermediate rates) and apparently there never can be so long as the present system continues in force." [1] Yet, in the face of this situation, phenomenal forward strides have been made during the last 30 years and certainly within the next decade the commercial importance of this area should be sufficient to force fairer treatment from the railways. And finally, the present broad powers of, and the application of those powers by, the Interstate Commerce Commission promise badly for the continuance of unreasonable discrimination. All factors considered, it would appear that the future promises happily for this inland area as compared with the past. The ultimate solution of the problem would seem to be the recognition of certain traffic, both westbound and eastbound, as non-competitive, the railways resigning control of such tonnage to the water carriers plying through the Panama Canal and recouping themselves and the mid-western production area served by them through a more intensive development of that great territory lying between the foothills of the Rockies on the east and the Cascade-Nevada ranges on the west. Under such a scheme, rates to inland territory should gradually decline, both relatively and absolutely, in their relation to the low level of charges which active water competition via Panama will compel at the Pacific Coast terminals.

General Conclusions

The closer the study made of the various rate structures throughout the United States the clearer must be the realization that, in these structures as they long stood, definite plan played but a small part; the governing policies of rate-making and resultant schedules have been grounded primarily upon historical developments and the competitive situation as it now exists in the particular area. Indeed, of all the

[1] 9 I. C. C. 318.

structures discussed, only one, the "graded and maximum" scheme of making intrastate rates in Texas, seems to represent an effort to accomplish a definite social end. But, just as these rate structures today are the result of past developments, so will they change from time to time as other influences come prominently into play. Of these various forces operating to modify present systems, the most important is change in economic conditions: without such change there is slight basis even for modification by a regulative body.

The diminution and stabilization of rail competition through corporate integration, combination, and agreement, changes in the volume of water traffic—river, canal, lake, and coastwise, and variations in market and industrial competition, will also play an important part in shaping the rate structures of the future. Then, too, more intelligent effort on the part of individual railways to aid their own territories, resulting from a closer study of the problem, will be made. And, last but not least, the purposive exercise of its present broad powers by the Interstate Commerce Commission will gradually eliminate not only unfair discriminations and practices but also, as has been so clearly evidenced by its work during recent years, entire rate structures, which are fundamentally unsound and but a hodge-podge of individual rates, or which burden carrier or public unduly.

As a result of the operation of these various forces it is certain that striking changes in particular rate structures will occur: the Southern structure faces marked readjustments within the next few months, the scheme of making rates in Eastern Trunk Line territory is under careful scrutiny, and the Southwestern structure has not yet taken final form. Indeed, barring the Trunk Line, Central Freight Association, and New England structures, there are perhaps none but that will undergo material changes during the next decade. Accompanying these modifications and readjustments, in part cause, in part effect, will be marked changes in economic conditions in the various territories; the elimination of unreasonable discriminations of long standing will

offer opportunities for development which have long been denied. With this, and as a part of the movement, will come, in all probability, a wider acceptance and application of the cost principle as a basis of determining rates by regulative bodies and a greater effort on the part of the carriers to ascertain costs. Such a development, though sacrificing a degree of elasticity, will nevertheless give a permanency and stability, as well as a scientific aspect, to rate-making which has not been characteristic of American railway rate practice in the past.

Passenger Rates

In the discussion preceding, which has dealt with rate-making in practice, sole consideration has been given to freight rates. This seemingly undue emphasis may be explained by the fact that the principle governing the making of passenger rates is normally very simple: rates tend to vary exactly with the distance and, if the distance be known and the governing rate per mile be used as a multiplier, the total charge can be readily ascertained. True, competition has functioned here as it has in the freight field, but such competition, because of the peculiar character of passenger traffic, cannot be carried to the extremes of discrimination so often found in the freight service. Another important point of difference between the making of passenger rates and of freight rates appears in the extent to which the former have been determined in times past by legislative action: Two Cent, Two and One-Half Cent, and Three Cent Fare laws have been enacted by the legislatures of many states. Such statutes oftentimes occasioned discrimination between intrastate and interstate movements and not infrequently threw a financial burden upon the carriers or upon other traffic. This fare-fixing movement, however, tended to subside after 1910 and, following the decision of the Supreme Court in the Wisconsin Passenger Fare case in 1922, all such legislation has become inopera-

tive: although the rate level in the future may quite properly vary between divergent sections of the country, it is unlikely that discrimination between interstate and intrastate traffic, or among points, will have any considerable future significance with respect to passenger traffic. In short, rate-making in the passenger field may be expected to be even more simple in the future than in the past, with but two factors having weight: mileage and the rate per mile.

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XXVI

COMPARATIVE RAILWAY CHARGES

The traffic unit in freight and passenger fields. Computation of unit costs. Railway costs and charges. Factors influencing costs: construction differences, efficiency, price level, traffic factors, quantity of shipment. Modifying factors: length of haul; type of traffic; character of service; purchasing power of money. Evaluation of passenger rate comparisons. Conclusion concerning the value of comparisons. Express charges. American freight rates. American and European charges. American passenger rates. Comparison with foreign charges. Conclusion.

DURING the past 100 years the steam railway has developed from a mere experiment into a transportation agency of fundamental significance, and in no country has that development been more striking than in the United States. Expanding rapidly, our railway net today comprises almost 40% of the mileage of the world. Yet, since transportation agencies are not regarded as ends in themselves but rather as instrumentalities of commerce, the comparisons which are of greatest value to us are those of service rather than of mileage. And as the rate is the only mathematical index available of the efficiency of that service, the rate becomes of immediate concern. How does the cost of transportation in the South compare with that in the North, in the East with that in the West? How do rates in the coal districts of West Virginia compare with those of Illinois, upon Kansas wheat with those upon Dakota grain? Indeed, how do rates upon the entire traffic of the United States compare with those charged upon the traffic of other countries? In arriving at conclusions, the comparison of individual rates or of the totals of published rates would avail little. On such a basis conclusions would be hard to draw and, when drawn, would be worth little because the tonnage moving upon some rates is negligible, upon

others tremendous. The only reasonable basis of comparison yet proposed is that of the average cost of movement of all the traffic handled by each railway or group of lines.

TRAFFIC UNITS IN FREIGHT AND PASSENGER SERVICE

In computing such an average, the first difficulty met has proved insuperable—it has been impossible to devise a common base for the two great types of traffic—for freight, upon which charges vary in general with quantity and distance, and passenger, upon which the individual charge varies with the distance factor alone. True enough, bases of equation have been devised, but the absence of agreement among these indicates the difficulty of securing a reliable consolidated figure. As a result of the inability to discover a common base, therefore, service as a whole cannot be compared with service as a whole—such comparisons as are made must be between similar types of service rendered by the carriers or groups of carriers under consideration.

In the selection of the unit to be used in the determination of average freight charges, any one of several might be employed. Of these the train-mile is one, but variations in train length are great from day to day and from season to season upon a single line, to say nothing of the variation between plains and mountainous territory and between countries. Therefore the train-mile as well as the car-mile, to which objection also lies because of wide variations from time to time and from place to place, are so open to criticism that they have been accepted by none. Indeed, the only unit which is sufficiently uniform to justify its utilization in the freight field is the *ton-mile*. By definition, the ton-mile is the movement of one ton one mile or its equivalent, as for example, 100 pounds 20 miles. Yet it may be well to note that even ton-mile compilations may not be comparable, because, in arriving at the figures, gross tonnage, net tonnage, or net revenue tonnage may have been

used. This difficulty is not experienced in the United States, however, because all American ton-mile statistics are prepared according to rules laid down by the Interstate Commerce Commission and cover, presumably, net tonnage alone, a clear differentiation between revenue and non-revenue traffic also being made. Several methods may be followed in compiling ton-mile data, but generally it is obtained by multiplying the weight of each shipment by the number of miles it has been moved, both items of information being gained from the way-bill. Occasionally, however, reliance in compiling ton-mile figures is placed upon the freight conductor's "wheel report" by the accounting office. It is in that office that monthly aggregates are made, not only of ton-miles but also of total tons of traffic handled, classified according to commodities.

In the selection of a unit to be used for comparative purposes in the passenger field, the problem is somewhat more difficult. Although the train-mile is as faulty here as it is in connection with freight movements, the car-mile is deserving of more serious consideration. To a degree which is not true of freight, the weight of the passengers occupying a car is negligible when compared with the dead weight of the heavily built vehicle in which they are moved. Therefore, when the factor of cost is regarded, it might well seem proper to give the car-mile serious consideration. However, because of the universal significance attached to traffic units and the fact that the charge so clearly pertains to the individual movement, the *passenger-mile* has been generally adopted as the basis of comparisons in this field. This unit, like the ton-mile, may be compiled upon different bases, but figures for American roads are prepared on the basis of what might be termed public movement, excluding movements of persons on company business. These figures, covering revenue passenger movement, are compiled by the accounting department, as are the ton-mile statistics, and usually are based upon the conductors' reports which are submitted at the end of each run.

COMPUTATION OF UNIT COSTS

Once the ton-mile figures of a given division, road, territory, or country are available, the average cost figure to be used for comparative purposes is obtained by a simple mathematical operation—the division of the total gross revenue from the freight service by the total number of ton-miles of business handled by the particular unit or area for which figures are desired. Similarly, the average cost of passenger movement is determined by dividing passenger-miles into gross passenger revenue. The figures thus obtained show, for a given period, the average cost to the particular public involved of moving one ton and one passenger, respectively, a distance of one mile. Conclusions based upon a comparison of these figures are given great weight by many, and those able to show the smaller quotient herald the fact with pride. Such figures have been accepted, too, by the public as an infallible index of the superior efficiency or the inefficiency of particular carriers or of the carriers serving a particular territory. Immediately the question arises, "Are such comparisons to be accepted at their face value, or does careful analysis tend to discount obvious conclusions?"

RAILWAY COSTS AND CHARGES

Before entering upon such an analysis, it is desirable that the nature and elements of cost, as before mentioned, be clearly understood. Under conditions of perfect competition in any field, cost to the marginal producer of a good or service—here being included necessary profits—and cost to the consumer are identical. However, the railway industry is not one in which competition functions in such manner as to insure this identity of costs, even in countries where the various properties are so owned as to preclude a community of interest. Because of this fact, we find that government control in one form or another is characteristic of modern railway operation, and that such control tends, with few ex-

ceptions, to maintain a close relationship between at least total costs and total charges, just as does competition. Within reasonable limits, therefore, it is consistent to regard any factor which influences cost as likewise affecting charges.

The cost of rendering carrier service is the resultant of many factors and considerations and, if the average cost figures of two or more units are analyzed, it is found that certain of these factors have operated to increase, and certain other, to decrease, the final figures for any particular unit; seldom will it be that all will operate favorably or unfavorably in the case of a single unit of operation, road or area. To make the matter more concrete, suppose computations show that the cost of freight movement in district A averages one cent per ton-mile and for district B averages two cents. What important considerations may account for the difference?

In district A it is possible that construction was easy and inexpensive; the topography of the region was such that satisfactory grades and locations were available at slight cost of labor or money. Construction in district B, on the contrary, may have been exceedingly difficult, and a reasonably efficient plant was to be had only as the result of heavy expenditures for tunnelling, filling, and other similar purposes. Such a variance would, the use cost of capital being the same in both districts, burden traffic in the latter for all time with a much heavier fixed charge than must needs be met by traffic moving in the former; this factor alone might reasonably account for an important part of the difference between the average charges noted. Or, again, the difference in cost may reflect in part a divergence in price levels governing during the periods when the roads were largely completed, or be due to the greater expense involved in securing satisfactory locations for right-of-way, terminals, and so forth, in an older country as compared with a newer. In any case, however, the result would be the same—heavier construction cost, making for higher charges.

Closely allied to original cost of plant is a second factor which may affect the two sections in such fashion as to account further for differences existing—maintenance cost. Such expenses vary widely, all other considerations being the same; among other things they are influenced by the range in temperature, the total and form of precipitation, the type of construction, and the topography of the country.

INFLUENCE OF EFFICIENCY UPON COSTS

Yet another important factor in determining the total cost of movement is the degree of efficiency exhibited in the management of the plant, high efficiency here being conceived as obtaining maximum results for a given expenditure. This efficiency may evidence itself either with respect to the utilization of materials and equipment, or with respect to the proper employment of the labor force. One road, using only high-grade materials for construction and maintenance work, laying heavy rails, double-tracking at needed points, maintaining a proper relationship between traffic and terminal facilities at all times, operating heavy trains of large-capacity cars drawn by thoroughly modernized locomotives of great tractive power, may be able to reduce ton-mile costs to a figure much below the figures of another road which, because of lack of capital or the handicap of poor management, follows a less economical policy from a long-time point of view. But not only is good management able to prove itself worthy of its hire by securing maximum results from the physical plant; perhaps even more of good or ill for the railway, from a financial point of view, will flow from the relationship established by management between the labor force and the "company." Certain roads have become conspicuous because of the splendid spirit of loyalty which permeates every phase of their work, while other managements have been eminently successful in keeping alive a covert or open hostility which has resulted inevitably in the inefficient use of time and, often,

the almost shameful waste of materials. Perhaps not even the loyalty of a shipping public is to be valued above that of the employees; without the latter the former will be lost and upon a solid foundation of employee good-will the support of the public will grow.

EFFECT OF WAGE AND PRICE LEVELS

A further factor in determining the cost of operation is the wage scale. Because of the movement on the part of labor organizations toward uniformity of wages and working conditions over large areas, the wage factor is increasingly less likely to be a variable one. Between countries, however, this not only is, but probably will continue to be, an important item in accounting for variations in cost. A further item involving direct expenditures which must be given clear recognition is the cost of materials and supplies. When we realize the magnitude of expenditures made in the course of one year by a single large railway for locomotives, cars, fuel, rail and tie replacements, and for other items necessary to property maintenance and to gradual betterment, it is patent that the general level of prices, just as the general level of wages, is an important factor in determining costs at a particular time.

TRAFFIC FACTORS

Still another consideration determining the actual cost of transportation service per unit of traffic is the degree to which traffic is balanced. Few carriers are fortunate enough to have a tonnage so evenly balanced as to obviate the movement of large numbers of empty cars in one direction or another, perhaps even both directions during different seasons, or a passenger movement so evenly distributed that efficient use of such equipment may be had on both the outward and the return movement. And this should be added: it avails little from the standpoint of railway econ-

omy that the return movement of grain in the autumn balances the outward movement of machinery, building materials, and supplies in the early spring, or that those who leave a particular point at one time return after a considerable interval. Neither freight nor passenger equipment can be placed upon sidings or in the yards until crops mature or until tourists have completed their sojourn. In a new country or even in an older one which produces raw materials largely, traffic is usually badly balanced and, in consequence, the one-way tonnage must bear a heavier cost burden. Passenger traffic of a tourist or resort type is also likely to be poorly balanced. This problem of unbalanced traffic causes railway management no little concern and many interesting and socially helpful efforts have been made to remedy the defect. Perhaps one of the most interesting of these efforts to build up a "back-haul" traffic was successfully made by the Hill lines in the rapid development of the lumber resources of the Pacific Northwest.

Closely related, perhaps, to the matter of traffic balance as a cost factor is that of density of traffic. If only a single train be operated each day over the line, expenses of considerable magnitude are necessary; these would increase little were the number of trains increased to 5 or to 10, possibly even 20 per day; assuredly the cost of operating the 20 trains would be but a fraction of 20 times the cost of operating the one. Therefore, as the tonnage handled increases, the relatively constant charges can be distributed over a rapidly broadening base, with a resultant lowering of unit costs. Here again the newer country is at a disadvantage as compared with the older with respect to both freight and passenger traffic, and here also is the road with well-balanced traffic in a better position than one which is not so fortunately situated because, with the best management, a heavy movement in one direction cannot produce the tonnage density, even when facilities are utilized to the maximum, that exists upon roads with heavy traffic both forth and back.

QUANTITY OF SHIPMENT

Manner of shipment is another and, for the purposes of this discussion, the final, factor which determines actual cost figures. Goods shipped in small quantities, in less-than-carload lots, are generally handled at the expense of the carrier and, billed as these small lots are to widely scattered points, they must often be handled many times before reaching final destination. Carload shipments, handled by shipper and consignee, capable of being moved long distances without break in bulk, manifestly represent lower costs to the railways. And further, the movement of solid trains—fruit, vegetables, live stock, grain, and so on—is possible at a much lower car-mile and ton-mile cost than the movement of the same number of cars picked up and dropped from station to station. Therefore a road, or group of roads, which enjoys a traffic that is predominantly carload rather than less-than-carload, or train-load rather than single carload, is clearly in a position to render a less expensive service to the public and yet serve that public fully as well and more quickly.

NOMINAL VERSUS REAL COSTS

Let it be assumed, then, that the varied operations of these major cost factors have given us the figures previously named—average ton-mile costs of one cent and two cents for districts A and B respectively. Without further analysis it would appear that the cost of transportation in B is double that in A, a situation which reflects great credit upon the railways of the latter district and affords a great advantage to their public, *if true.* But *is* it true? Here our conclusion involves a consideration of something which goes beyond the mere mathematical accuracy of the computations which give us the one cent and the two cents; there are certain considerations which may not reflect themselves directly and significantly in costs but tend, rather, to

modify or to vitiate the conclusions resting upon a bare mathematical comparison of average cost figures. In fact, it is entirely possible that, all elements considered, patrons of the carriers in district B have received more than double the service for the higher charge than did those in district A for the lower, rather than the higher charge being proof of lesser efficiency, an accusation of rendering a like service at greater cost.

One factor which may modify greatly conclusions based solely upon comparative figures is a difference in length of haul. Suppose that in A the average length of haul is 200 miles, while the corresponding figure for B is but 50. In either case, there are but two terminal charges to be assessed against the movement and, though there may actually be a somewhat greater handling cost incident to the 200-mile movement, that excess cost will be but a small fraction of the total. Assuming terminal costs to be the same in both districts and movement costs per mile likewise equal, the distribution of the terminal cost over a distance of 200 miles in the one case and over 50 miles in the other would result in an average total cost per ton-mile markedly greater for B than for A. It is evident, therefore, that this consideration alone might entirely discount a wide gap between the averages to be compared.

A second factor of importance to be considered in evaluating such mathematical comparisons is that of the relative proportion of high- and low-grade traffic. One road may move a tonnage which consists largely of high-grade manufactured goods, perishables, and so forth, while another may have a tonnage made up principally of coal, ore, grain, or other low-grade traffic. To say that the average cost of handling the former type of traffic, moving in small quantities, necessitating greater handling, risk, and care, is in excess of that involved in handling the latter is but to state the obvious. Yet this consideration is often neglected in making comparisons of averages. Figures for roads handling essentially the same types of traffic in the same proportion

are comparable, but great care must be exercised in comparing the figure of a given road with the figure for even that same road some years earlier, because of the possibility of a fundamental change in the character of its traffic. In this variation in type of traffic from year to year lies the explanation of the fact that the average ton-mile charge often increases more sharply than rates advance and likewise declines more rapidly than rates decrease for a given road or district. With the increase in rates the movement of certain low-grade traffic ceases almost wholly and, with a drop in rates, such traffic increases in quantity by leaps and bounds, the high-grade traffic continuing to move in a relatively steady stream under high rates or low. Moreover, in countries in which bulky, low-grade goods are utilized locally and appear in commerce mainly in finished state, as well as in those in which such low-grade traffic moves principally by water, the average figure will be deceptively high.

CHARACTER OF THE SERVICE

A third consideration which may modify conclusions based upon mere ton-mile costs, as well as affect those costs in part, is the wide variation in the character of the service rendered. One road or group of roads may offer a speedy and frequent service, furnishing in connection with it special equipment of an expensive nature and unusual assistance, such as the collection and delivery of package shipments or the extension of special care and attention, while another road or group of roads may subject its patrons to the opposite of the service thus described. In the face of such incomparable services, to declare that the recipients of the better treatment are the victims of an inadequate and inefficient transportation machine simply because of a somewhat greater average ton-mile cost would be a conclusion not only unwarranted but quite contrary to fact. That there is a wide divergence in the character of service be-

tween roads, between districts and, to an even greater degree, between countries, is sufficiently well known to demand that, in any comparison, this factor be given weight.

PURCHASING POWER OF MONEY

Yet another significant, though often neglected, modifying factor is the relative purchasing power of money in the districts or countries compared. For, after all, it is not the *absolute* amount of the charge that is significant but, rather, the relation of the charge to the value of the goods shipped. A rate upon wheat of 20 cents per bushel between two certain points at a particular time is actually less than a rate of 10 cents at another time or place, if the wheat at the one time and in the one district sells for $2 per bushel as compared with but 75 cents at the other. Between different sections of the same country at a particular time variations in the purchasing power of money will not be great, but between countries the variation is often wide. Also, the variation is wide in a given country from time to time; a rate schedule increased by 75% when prices have increased from 100-150%, while *seemingly* burdening the shipper and consumer more heavily, in reality represents a lighter load than that which had been borne before with perhaps little complaint. Not even a corporation owning a plant dedicated to public use can continue to serve at old rates when the general level of prices which must be paid for labor, materials, supplies, and so forth, has advanced rapidly and far. It is necessary, therefore, to consider, in making a true and accurate comparison, not merely length of haul, type of traffic, and character of service, but even the relative purchasing power of money—in itself a difficult problem.

EVALUATION OF PASSENGER RATE COMPARISONS

Thus far the modifying considerations have been considered only with respect to the freight business. To confine

their operation thus would be incorrect, however, for they function in the passenger field as well, with but one exception. Because of the usual method of charging for passenger movement by the mile in contrast to the freight charge which increases with distance but not in proportion to that distance, the average length of haul in nowise vitiates comparisons. Variations in the proportion of various "grades" of traffic—first-class, second-class, and so forth, will make mathematical results of rather little true worth, however, as will the varying purchasing power of money. Differences in the character of the service must also be "read into" any figures to be compared before conclusions are drawn, because speed of trains, frequency of service, accommodations, incidental privileges—baggage, stop-over, personal service—and type of equipment may serve to invalidate wholly a disadvantageous comparison resting solely upon average passenger-mile cost figures.

In the light of such criticism of the validity of conclusions based upon the comparisons of ton-mile and passenger-mile costs, it is natural that the question arises as to the worth of comparisons, either as between two periods of development or as between two areas. In answer it may be said that, if care and discretion be exercised, such comparisons are of sufficient value to justify their being made. However, conclusions must always be of a somewhat tentative character and relative in nature, rather than definite and absolute as it would seem possible on first thought to make them, based upon mathematically exact computations as they are. With this suggestion, then, certain comparisons will be undertaken—period with period in American railway history, and between American and European results.

EXPRESS CHARGES

In the movement of goods two distinct types of services are offered, express and freight. Although the conduct of

the former under a management distinct from that of the railways in the United States tends to give an impression of difference in kind rather than in degree, it has previously been made clear that the express service concerns itself merely with a higher type of goods traffic, or a type of goods traffic to which speed of movement is more essential than moderate charge. The express business in the United States has been characterized until recent years by high and discriminatory charges. Indeed, it was only with the exercise of regulatory power by the Interstate Commerce Commission, that public interest was consulted and safeguarded. Firmly intrenched upon individual roads as the result of the famous Express Company cases,[1] and protected from the competition of other similar organizations by carefully observed agreements, the business was in a strong monopolistic position. Charges were in consequence slow to conform to the changes in the economic situation, and did so then only as the advantage of the express organizations themselves was served. As a result of regulation the rate level was distinctly lowered, though the war period necessitated an upward movement. As yet, conditions have not justified a revision downward.

In comparison with the express service of European countries, taken as a whole, the average cost here has been high. This has been due in large measure to the long absence of any regulatory control in the form either of governmental authority or competition—such as the parcel-post service which has long been established abroad, together with the fact that the separate organization of the service here—the "wheel within a wheel" arrangement—has tended to shift responsibility, if not to increase charges.

AMERICAN FREIGHT RATES

In the determination of the rate to be charged upon a freight movement, essentially the same factors are involved

[1] 117 U. S. 1.

as in the fixation of express charges, though perhaps here both absolute and relative cost have been given more careful consideration. The movement of the average ton-mile charge of American railways during the past half-century has been distinctly interesting. Table 36 gives figures showing the movement.

TABLE 36

FREIGHT REVENUE PER TON-MILE—UNITED STATES [1]

1870	$ .0199	1908*	$ .00754
1880	.0117	1909*	.00763
1887	.0103	1910*	.00753
1890	.0091	1911*	.00757
1892	.00896	1912*	.00744
1897	.00798	1913†	.00729
1898	.00753	1914†	.00733
1899	.00724	1915†	.00732
1900	.00729	1916†	.00716
1901	.00750	1917‡	.00773
1902	.00757	1918‡	.00950
1903	.00763	1919‡	.0100
1904	.00760	1920‡	.01052
1905	.00766	1921‡	.01275
1906	.00748	1922‡	.01177
1907	.00759	1923‡	.01116

* Excluding terminal and switching companies.
† Including only class I and II roads.
‡ Only class I roads.

The decline which was evident until the effect of rate advances of the war period come into play, is the result of many factors. This steady downward movement came, in part, from better-balanced traffic, greater density of traffic, and an increasing proportion of goods moving in quantity lots. But perhaps the most significant factor in accounting for a decline in the face of higher wage scales, greater cost of materials and of new plant, is increased operating efficiency—a no small tribute to those who have given their life's effort to the development of our transporta-

[1] Based upon census and Interstate Commerce Commission reports, except 1923.

tion machine. For the country as a whole the average number of tons per train has risen from 175 in 1890 to 647 for 1920 and for the best roads the average has risen from about 100 in 1870 to about 750 in 1923. And it is interesting to note that this decline in average ton-mile charges seems to be as real as the figures indicate; though the average length of haul has increased and a much larger portion of the tonnage is of low-grade character, the increased quality of the service and the decreased purchasing power of money would seem to make the ton-mile figure for 1923 in reality even a smaller fraction of the earlier charge than it appears, nominally, to be.

AMERICAN AND EUROPEAN CHARGES

To make a present comparison of American freight rates with those of European countries is rather difficult in view of the present disorganized state of industry and trade abroad, and such comparisons, if made, would be unfair to many of the countries involved. In view of these facts, perhaps it is not amiss to compare the results shown abroad just prior to the outbreak of the World War with those of the United States for approximately the same period. Rates per ton-mile in the various countries of western Europe varied from approximately 50% in excess of those in the United States for Belgium to 200% in excess for the United Kingdom, with Germany and France both having rates approximately double those charged here. However, such a comparison is hardly fair to the foreign systems in question; only by analysis can relative costs be determined. In respect to cost factors, the advantage lies almost wholly with the European carriers, for traffic is there much better balanced, traffic density is greater, wages are lower and material costs somewhat less than our own, though the cost of plant and the type of shipment operate to their disadvantage. This condition last named gives European railways splendid opportunity to increase their operating effi-

ciency; its low state explains in part high European charges.

The advantage in average ton-mile rates enjoyed by American shippers, nevertheless, is less real than figures indicate. Though the purchasing power of money is less in the United States than abroad, several factors tend to invalidate our nominal advantage. In England the railway not only carries but also collects and delivers package freight at terminals, and throughout Europe the average length of haul is but a small fraction of that of the United States. The average class of traffic in Europe is higher, also, because much low-grade traffic abroad moves by water. When the fact is realized that average cost is not diluted there as here by the movement of an enormous tonnage of low-grade commodities—approximating two-thirds of our total, and that the typical length of haul varies from about 25 miles in England to little more than 75 miles in France, as compared with an average length of haul for the United States during the same period of 260 miles—it is clear that the low average rates enjoyed in the United States result largely from the very nature of the American situation. Nevertheless, giving weight to all modifying factors, it appears that the American enjoys more than a nominal advantage over the European; a portion of that advantage is real, though just how much cannot be said.

AMERICAN PASSENGER RATES

The passenger rate differs markedly from the freight rate in that it varies directly with distance and, though perhaps recognizing ability to pay as a determinant, certainly has more nearly approximated monopoly price in American practice than have freight rates. The peculiarity of passenger service as compared with freight seems to be that competition in rates in the case of the latter has been well-nigh supplanted by competition in service, and an examination of the average rate in years past as compared with the present, together with a comparison of services offered, tends

to substantiate this conclusion. The actual movement of the average charge since 1889 is indicated below.

TABLE 37

AVERAGE REVENUE PER PASSENGER-MILE—UNITED STATES [1]

1889	$0.02165	1906	$0.02003
1890	.02167	1907	.02014
1891	.02142	1908*	.01937
1892	.02126	1909*	.01928
1893	.02108	1910*	.01938
1894	.01986	1911*	.01974
1895	.02040	1912*	.01987
1896	.02019	1913†	.02008
1897	.02022	1914†	.01982
1898	.01973	1915†	.01985
1899	.01978	1916	.02045
1900	.02003	1917	.02103
1901	.02013	1918	.02453
1902	.01986	1919	.02557
1903	.02006	1920‡	.02745
1904	.02006	1921‡	.03086
1905	.01962	1922‡	.03027

* Exclusive of switching and terminal companies.
† Class I and II roads only.
‡ Class I roads only.

The conspicuous feature of the table here given is the relatively slight change in the average rate per passenger-mile through a period of almost 30 years despite an increased density of traffic per mile of line on the one hand and, on the other, a veritable epidemic of 2-cent fare legislation which resulted in forcing rates on both intrastate and interstate traffic to a distinctly lower level for a considerable period following 1905-1908 than had previously governed. However, the one was offset largely by improved service while the other was compensated in a considerable measure by the enactment of anti-pass legislation and the increase of traffic due to the lower rates. Increases since 1916 are due to the upward movement of rates as a result of war conditions and price inflation.

[1] Based upon Interstate Commerce Commission reports.

COMPARISON WITH FOREIGN CHARGES

This rather steady average charge of approximately 2 cents under normal conditions compares rather unfavorably, on its face, with average passenger-mile exactions of European systems. This average varied from as low as about .7 cents for Belgium to as high as 1.5 cents for the United Kingdom, with the charge for Germany being approximately .9 cents and for France 1.1 cents. This materially lower average charge for all European countries is ascribable to several factors.[1] Certain significant cost factors operate to make this possible. Of these perhaps density of traffic is the most important, though lower wages and lower cost of materials must be taken into account, as well as the rather less expensive character of passenger equipment used by the foreign railways. Then, too, the efficiency of the European railway seems to be distinctly greater in its handling of passenger traffic than of freight; there passenger revenue constitutes a considerable portion of the total, while in America it is looked upon as a more or less necessary evil or as an advertising adjunct.

However, the rather marked disparity during pre-war times between the average fare here and abroad is far less real than nominal. In the first place, the purchasing power of money is greater abroad, which would, alone, greatly modify comparisons prejudicial to American railways. But even more important, as invalidating such a conclusion, is the wide variance in type of traffic handled. In the United States but one significant type of service is rendered aside from the regular, or first-class, service, and that is a super-service—commonly termed Pullman service. When it is realized that this normal service is almost equal in accom-

[1] The average rate per passenger-mile in European countries for which post-war figures are available shows an even sharper upward movement than has occurred in the U. S. This fact is apparent from the following:

Country	Pre-War Average in Cents	Post-War Average in Cents
United Kingdom	1.51 (1912)	2.66 (1921)
Switzerland	1.20 (1914)	2.24 (1921)
Norway	1.43 (1914-15)	3.51 (1921-22)

modations to the first-class service of European countries and fully equals, or exceeds, that service in speed, convenience, and so forth, and that in Europe such service is enjoyed by very few, the normal mode of travel there being far below the average of comfort, speed, and service enjoyed by the American passenger, it argues an ignorance of facts to claim marked superiority for European passenger service. So divergent were conditions between Germany, with her five classes of traffic and heavy suburban business, with a charge for all baggage, a tax upon all tickets, and even an exaction for "platform" tickets, on the one side and the United States, with only standard service, a liberal baggage allowance, no railway tax on tickets, and free access to station and platform for friends and relatives, on the other, that it is actually doubtful if even the .9 cents average was, in reality, as cheap as the 2 cents for the United States. To draw a definite conclusion, therefore, as to the comparison of European passenger charges with American, is even more difficult than of freight; indeed, interpreted in the light of variations in type of traffic, character of service, and value of money, it appears that little or no advantage of one over the other is discernible. However, it is not an unreasonable assumption to make that, were American railway management as enterprising in the development of passenger business as of freight and somewhat less wedded to the idea of using that branch of service as an advertising medium, there might be developed a more varied service with a lower passenger-mile average, yet one yielding a greater net operating revenue than the present.

CONCLUSION

In conclusion, this may fairly be said regarding the railway system of the United States: it has furnished, in the face of many obstacles and difficulties, a high-class service and has done so at reasonable rates. Its faults have grown largely out of financial management rather than plant man-

agement, out of governmental adherence to a fallacious policy of enforced competition rather than a wilful desire to injure or run counter to sound public policy. It has already contributed greatly to American economic and social development and will play an equally vital part in future progress. When good is set off against ill, when the tremendous contribution of the railway to American life is compared with the evils and abuses which accompanied its growth, the negligible character of the latter is clearly apparent. The protests of those who discern flaws should be given heed, but the public should avoid that common error of those who give ear to protests—the tendency to see the mole-hill as a mountain. No people in the world owes more to the railway than the American and none other enjoys a service superior to, if the equal of, our own.

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RAILWAY TRANSPORTATION

PART IV

REGULATION OF THE RAILWAYS

XXVII

THE BASIS OF RAILWAY REGULATION

Early regulation in England. Persistence of regulation in the field of transportation. Characteristics and obligations of a common carrier. Public aid given the American railways. Early reliance of the public upon competition. Need for regulation becomes evident. Major purposes of regulation. Private *versus* governmental operation in the accomplishment of these purposes. Determinants of a proper policy: stage of economic development; degree to which artificial stimulation of public welfare is essential; governmental efficiency. Limitations of police power as a basis of regulation. Suggested bases for general regulatory acts. Existence of monopoly in an important field fundamental. Constitutional basis for governmental action. The judicial function in regulation and commission. Problem of the state *versus* federal jurisdiction. Adjustment prior to 1913. More recent developments. The significance of the Transportation Act.

In preceding chapters frequent reference has been made to the control exercised over American railways by legislature, commission, and court, both state and federal. A major problem remaining is, therefore, a presentation of the history and character of such regulative action. Before considering the problems and policies of regulation in detail, however, it is desirable that a clear understanding be had of the ground or grounds upon which this interference with, and control of, a great industry rests. Federal interference in other than the railway field has been negligible thus far, and state regulation has been concerned in large measure with that same enterprise. What is the economic or legal basis upon which such differentiation—such discrimination, as it has often been characterized by railway partisans—rests?

EARLY REGULATION IN ENGLAND

The better to understand regulation today, a brief sketch of its early history and development will be given. In com-

menting upon conditions which gave rise to governmental action it is said, "In the middle ages and long thereafter, the necessity of furthering the well-being of the people and protecting them from oppression was enough to justify state interference. In the England which we see through the medium of our earliest law reports, the medieval system was at its highest point of development. . . . The older policy had been one of almost universal regulation. Most of the trades in the towns were restricted by the guild system. . . . Some businesses required the investment of more or less capital in constructing a plant, as the bake house and the mill. It had been necessary at the outset that these should be provided by the lord of the manor and the seignorial ban covered these, the lord granting franchises to certain persons. Those who conducted these businesses were bound to serve all fairly or answer for it to the courts of the manor. . . . The fundamental principles in the medieval order, taken as a whole, were, therefore, the establishment of special privileges and a consequent system of state regulation both in respect to service and in respect to price; and it is clear upon all the evidence that these principles of state regulation were put into practice by the special tribunals and regular courts in a thorough and intimate manner. . . . Not only did the law regulate business indirectly, through the courts; Parliament itself frequently regulated prices of necessaries of life by direct legislation. The great staples like wool and food were habitually regulated in this way and the employment and price of labor was a subject of statutory provision." [1] Regulation, beginning even prior to 1266 in the reign of Henry III, continued to and throughout the period of the settlement of America; in consequence, the general theory of the right of the state to regulate business was accepted by the colonists, as is shown by certain regulative acts passed during the seventeenth and even as late as the eighteenth century. Such regulation was particularly common in New England, Massachusetts regulat-

[1] Beale and Wyman—*Railroad Rate Regulation*, § 3.

ing the prices of many items, varying from wages to merchandise and from bread to rum.

PERSISTENCE OF REGULATION

With the acceptance of competition as a proper force in the economic and social order, the demand for state interference largely disappeared; during the latter part of the eighteenth century and the early part of the nineteenth, the philosophy that "that government which governs best is that which governs least" gained wide acceptance. There was, however, a restricted sphere within which doubt was entertained as to the efficacy of competition in securing to the public a high character of service at a reasonable rate. Outstanding within this sphere were the agencies of transportation by land and by river. From very early times this exceptional position of transportation agencies was recognized. The explanation of this lay essentially in the economic conditions existent, as did the explanation of the regulation of other enterprises. Roads, even in England during the period from the fifteenth to as late as the eighteenth century, were no more than trails winding through the wilderness, fit for use only by the pack train. Too, travelers were constantly subject to great danger at the hands of brigands so common to that time. In consequence of this situation, individual transportation of goods was scarcely possible; instead, the business of transporting for hire developed, the carriers often traveling in large groups with armed protection. Because the amount of traffic was as yet relatively small, goods were moved under conditions that approximated monopoly, hence regulation was necessary if those offering goods for carriage were not to be subjected to the arbitrary will of the carrier. Since that protection was not offered by the guild system in the towns or by the manorial system in the country, "it became necessary for the common law and the national courts to take charge of the situation for the protection of the public."

CHARACTERISTICS AND OBLIGATIONS OF A COMMON CARRIER

It was during this period that the essential characteristics of a common carrier obtained gradual recognition and took definite form. The first of these, clearly recognized then as now, is that the common carrier is one engaged, as a business, in the transportation of persons or of goods belonging to others. Such a carrier undertakes to carry all goods offered of the kind to which his business is confined or to carry all persons who present themselves in accordance with rules laid down. Furthermore, the common carrier undertakes to transport by the method of his business and over an established route. Finally, such transportation must be for hire if the service is to have legal status as common carriage. To the extent that these conditions are met, any transporter of goods or persons has been recognized as a common carrier for many centuries and, as such, is held to owe to the public certain definite duties.

The first and perhaps the most important of these obligations is the rendition of adequate service, a service which will meet the demand therefor under all conditions that can be reasonably anticipated. But not alone must the service be adequate: it is of equal importance to the public that a regular and continuous service be maintained. For this service the carrier is permitted to exact a reasonable rate, but charges in excess of what may be properly regarded as reasonable are subject to attack under the common law. Yet another obligation which has come to rest upon the common carrier is that no unreasonable discrimination shall be practiced with respect to either services or charges. Such, then, were the characteristics of the common carrier and the nature of its legal obligations to the public when railway development began. Such, too, were the obligations which attached to the railways as common carriers from earliest years, though belief in the efficacy of competition minimized the enforcement of those obligations for almost the first half-century of railway growth.

PUBLIC AID GIVEN THE AMERICAN RAILWAY

Although the regulation of tolls over highways and bridges as well as ferries was common during the early years of railway development, the tremendous demand for additional railways, together with a belief in the competitive character of the railway business, led to a policy of stimulation rather than of restriction. The importance of adequate transportation in the further division of labor, in the development of markets, and in the more intensive and extensive utilization of natural resources, cannot be magnified. Neither can its importance in the increase and better distribution of population, in the development and the diffusion of culture and intelligence, and in the extension and maintenance of the political unit be overestimated. The peculiar adaptability of the railway to the accomplishment of these ends was immediately recognized in the United States, which lacks satisfactory water routes. In consequence, interest was centered for a considerable period upon the increase in mileage rather than upon efforts purposed to subject the existing mileage to public will.

In older and, from an economic standpoint, more highly developed countries, the construction of mileage can safely be left to private enterprise and it has been so left except in those countries where, for certain reasons other than lack of capital, government construction and operation was desired. In newer sections of the world, however, there is generally lacking a sufficient economic basis to insure an immediate return and there is, furthermore, a scarcity of available capital. Such conditions almost invariably result in generous public aid, if construction and operation be undertaken by private enterprise. As those know who are familiar with the development of the American railway net, and particularly that portion marked by a lack of an immediate economic foundation, the rapid and extensive building of this great mileage was made possible largely through public aid in one form or another. As indicated in an earlier

chapter which deals with the history of railway development, heavy aid was received from both private and public sources. From private individuals came moneys, lands, and labor beyond, perhaps, the possibility of accurate measurement. In addition to that aid which is measurable in terms of money, the railways received public assistance in the form of grants of power. One form of the grant of power, the privilege of corporate existence, was in nowise different or greater than accorded to innumerable enterprises in other fields, but the other, the right of eminent domain, was unusual and of great importance. For one with experience in the extension of railway properties in a jurisdiction in which the right of eminent domain might be exercised in case a satisfactory adjustment could not be reached by treaty between the property owner and the railway corporation, to appreciate the difficulties faced in construction where such right has not been extended, as in England, is almost impossible. Indeed, a portion of the high cost of railway construction in England is undoubtedly attributable to the fact that any project was under the necessity of securing needed locations upon such terms as might be forced upon it by private property-holders. The gain resulting to the railways of the United States in the matter of both rapid and less expensive construction because of the enjoyment of the power of eminent domain cannot be estimated, but certainly is not negligible, even in comparison with the heavy grants of a more material character which were received.

More tangible and more significant in the public mind than grants of power was the aid received from the various public units—local, state, and federal—in the form of loans, gifts, exemptions, and guarantees. The most conspicuous instance of a government loan is that of the United States to the Union Pacific and Central Pacific railways. Many states, too, particularly during the first four decades of railway construction, sought to encourage the development of mileage in a like manner but usually with less happy results for the lender, both as to mileage and repayment, than

in the instance just mentioned. Earlier discussion has set forth the extent of gifts received by the railways from public units in the form of moneys and of land, but mention should here be made of the character of exemptions granted. In early railway charters particularly, exemption from taxation for a definite period was often given, though in other cases the duration of that exemption was contingent upon the development by the property of a certain earning power. Materials necessary to railway construction were also exempted from tariff duties for some years. Exemptions were granted, too, from certain legal restrictions normally imposed upon corporate enterprise, such as that which forbade a corporation to engage in any but one type of business; one of the most interesting of the privileges granted to certain early railway enterprises was that which permitted them to engage in banking as well as railway operations. Occasionally assurances of freedom from competition were given, such a monopolistic position being guaranteed within a particular area for a definite period of years that varied from 20 years upward to as many as 36. A final type of aid, though one infrequently found, was that of a definite guarantee of return upon the investment in carrier property.

EARLY RELIANCE OF THE PUBLIC UPON COMPETITION

All early railway properties, whether constructed with public aid or without, were developed upon the assumption that the railway business was fundamentally competitive in character; the public believed the solution of such ills as appeared lay in the further stimulation of competition rather than in the direction of governmental intervention. As previously indicated, this belief in the competitive nature of railway enterprise resulted both from the inability to discriminate between the essential economic character of the railway business as compared with other forms of transportation, land and water, and from the widespread accep-

tance of the *laissez-faire* principle throughout the early years of railway growth. The results of this too broad application of the competitive principle were bad from both a public and a railway standpoint, as might reasonably have been anticipated. Not only did competition fail to solve the problems which arose, but it aggravated a situation already unsatisfactory. Many of the most serious problems of today, pertaining to the location and financial situation of railways, exist largely because of the effort to apply competition upon a broad scale in a field in which its utility, when judged from a public standpoint, is closely circumscribed.

NEED FOR REGULATION BECOMES EVIDENT

Although it may be said that railway operations have always been subject to governmental control in some measure, the extent of that control in the United States prior to the passage of the so-called Granger laws was slight in theory and less in fact. Resting upon charter provisions in almost all cases, it proved ineffective both because of the usual inapplicability of charter provisions to actual conditions as they developed and because of the laxity with which those provisions, in so far as applicable, were administered. It appears that effective governmental control over railways in America is, therefore, the outgrowth of public experience with those agencies, the answer to a definite need.

The need of such control arises primarily from the conflict between private and public interests. Private enterprise—and it is by private enterprise that American railways have been constructed and operated, is concerned with maximum long-time profits. In the effort to attain this goal it is inevitable that public interest in high-class service at low rates and upon relatively equal terms will generally receive secondary consideration. Public and private interests in most fields of endeavor are harmonized by giving relatively free play to competition with little or no governmental interference, but experience has shown that compe-

tition is inadequate in the railway field to safeguard properly public rights. Furthermore, the weight of mere public opinion has all too often been insufficient to balance these two great and conflicting interests. Adequate protection of public interests must depend, therefore, upon positive action by government, state and federal.

MAJOR PURPOSES OF REGULATION

Such positive action may have either or both of two major purposes. It may be desired merely to prevent the *direct* and *active thwarting* of public welfare through subordination to private interests. In this case efforts will center upon securing and maintaining an adequate and regular service, in protecting the shipper against unreasonable charges, and in eliminating all rates and practices which are unreasonably discriminatory in character. In short, such action has for its purpose merely the enforcement of those major duties owed the public by a common carrier. On the other hand, however, the purpose which motivates the active exercise of governmental control may go quite beyond that just mentioned and endeavor to accomplish the *artificial stimulation* of public welfare, using the railway as an instrumentality. This artificial stimulation may take the form of an effort to promote economic development, such as actuated the Texas Railroad Commission in the application of the graded-and-maximum rate principle within its jurisdiction. Again, the purpose may be the further socialization of the people within a given area through the increased contacts which would result from travel, were passenger tariffs low. Such a purpose might well actuate a government in its control of passenger service, when confronted by a population made up of diverse and unsympathetic, even antagonistic, elements. And, finally, this artificial stimulation may have for its purpose the development of the railway net not alone with a view to its economic function but also with a view to the part it may be called upon to play as an instrument of

defense or offense in case of war. Any nation peculiarly exposed to attack because of its geographical or political situation would be remiss in its obligation to its citizens if it failed to take this factor into consideration in the development of its railway net. In general, of these two purposes the former, that of preventing the direct and active thwarting of public interest, has been given major consideration by regulative bodies in the United States, but in many other countries the second factor has loomed much larger. And many careful students declare that further artificial stimulation of public welfare might benefit America.

PRIVATE VERSUS GOVERNMENT OPERATION

Two operating relationships may exist between the railways and the government which permit of the accomplishment in varying degrees of the two major purposes just indicated. Most familiar to Americans is private operation, subject to the exercise of governmental control over policies and practices. This plan has the advantage of eliminating largely all active and direct thwarting of public welfare, and it also insures those gains which result from the relatively free scope of private initiative in business. It does not, however, permit of more than a minor stimulation of public welfare and, if such a goal is of serious import, this relationship is therefore ill suited to the situation. Although private operation of railways, governmentally owned, may be found, it is an abnormal relationship: there is great difficulty in working out a satisfactory contract between the government and the private corporation with respect to the use of the properties and, although such ownership makes possible the utilization of government credit in the further extension of the property and the addition of necessary equipment, such assistance is all too prone to be controlled by political rather than economic considerations. The private operation of governmentally owned properties is generally either the outgrowth of unsuccessful governmental operation or represents

the first step in a transition from government ownership and operation to ownership and operation by private interests. As a permanent policy private operation and government ownership has nowhere proved satisfactory; rather, if private operation is found it is in connection with private ownership. Such ownership leads to the application of business standards to all projected extensions as well as to proposals for intensive development and has shown itself, in conjunction with private operation, essentially suitable as a permanent policy. Its handicap lies in the fact that, if credit becomes weak, needed expansion may become difficult, and in the fact that non-economic ends, such as the development of new areas and the construction of mileage of little value except in case of war, are likely to be but poorly served.

In contrast to private operation, the operation of railway properties by the government is able both to prevent the adoption of policies which are actively inimical to public welfare and to make possible in large measure such artificial stimulation of public interest as may seem desired. Yet it is, at the same time, subject to such limitations in the matter of governmental efficiency as may exist. Instances of government operation of properties privately owned and of those belonging to the government may be found. Private ownership, however, has never been a satisfactory basis for government operation because of the limitation which such ownership may impose upon both the extensive and intensive development of the property, with a consequent partial defeat of certain social aims, and because of the difficulty in framing a satisfactory contract between the government which operates and private interests which hold title to the property in use. As even a temporary policy this relationship has shown itself to be as unsatisfactory as the private operation of governmentally owned properties; as a permanent policy it is highly improbable because of these difficulties and because of the fact that any change in public opinion, sufficiently marked to enforce governmental operation, would carry with it a demand for ownership as

well. Government operation of privately owned railways, will appear only in emergencies such as that which developed in the United States during the period of the late war. Government ownership will be found instead, since that relationship not only avoids all conflicts that develop in the face of a mixed relationship but makes possible, in the maximum measure, the accomplishment of any social purpose the public may hold in view. As a permanent policy, then, private ownership and operation, subject to regulation, should be compared with the ownership and operation of railways by the people themselves, through government.

DETERMINANTS OF A PROPER POLICY

To discuss the relative soundness of these two policies in the abstract, would be as fruitless as to endeavor to determine what particular medicine has been of greatest service to mankind. It is only with respect to a particular situation that the relative merits of these divergent relationships can be discussed with profit; the superior value of the one or the other will be determined by the situation which exists at a particular time in the country in question. For, after all, the "best plan" is that one which, all factors considered, *works* best at a particular time and place.

One of the important factors in determining the nature of this "best plan" is the stage of economic development which a country has attained. If an ample supply of capital is available there is little necessity of governmental entry into the field, but if capital is difficult to obtain in sufficient amounts to make possible the accomplishment of essential projects, government may be obliged to render aid in one form or another. During the years of major railway construction in England a surplusage of capital was available which made government assistance in any form wholly unnecessary, but without heavy aid in the United States the construction of much mileage would have been long delayed and, in the absence of financial support by government, such

a project as the Siberian Railway would not have been built for many decades after its actual construction.

The stage of economic development existent at a particular time also measures essentially the possibility of the successful business operation of a railway property. If a considerable degree of advancement has been attained, immediate financial success is likely to follow construction; if the territory is relatively undeveloped, any railway built into it must face the prospect of unprofitable operations for a period, brief or long, depending upon the rapidity with which traffic develops in the area. If immediate success is reasonably assured or if profitable operations appear probable in the near future, private capital will be ready to enter the field. If the development of a sound economic basis for the property appears to be a matter of the remote future, however, private enterprise cannot be expected to take the initiative. In such a situation, government construction and operation will be necessary to the realization of the project.

A second major factor to consider in determining the type of control best suited is the degree to which the artificial stimulation of public welfare seems essential. This will vary widely under different conditions. Should the expanse of territory be such that railway construction seems necessary to establish and maintain satisfactory communication, the government would seem to be wholly justified in entering the field. Certainly the Siberian project, as well as that new property which traverses the great unproductive expanse of territory between southwestern and southeastern Australia is to be justified upon political rather than economic grounds. The geographic location of a country will also determine in part the extent to which action may be justified upon the ground of public welfare. This is true not only with respect to the matter of markets, but also with respect to the problem of self-defense. As illustrative of the former might be taken the Canadian situation: had construction between eastern and western Canada been so difficult as to constitute an effective bar to private enter-

prise, the Canadian Government would have been clearly justified in expending large sums in the establishment of railway connections in order that the portion of Canada lying west of Winnipeg might not become economically tributary to, and socially identified with, the United States. As illustrative of the problem of self-defense, perhaps no better contrast can be made than between Germany, with mighty Russia on the one side and embittered France on the other, and the United States with a friendly people on the north and a weak and undeveloped nation on the south. Certainly in the face of a situation such as confronted Germany, governmental control, not alone of railway construction but also of railway operations, was far more essential than in the United States. Then, too, the extent to which artificial stimulation is desired will depend in considerable measure upon the governing political philosophy. If the ultimate goal of the nation is conceived to be the development of a powerful military, financial, or industrial state, it may be necessary that the government should more than merely guarantee its citizens protection against injury to accomplish this end most effectively. If, however, the dominant political philosophy exalts the individual rather than the state and seeks merely to accomplish through the state the maximum development of that individual and to offer him the greatest possible opportunity for self-expression, it appears that the regulation of railways, privately owned and operated, will best attain that goal. Such has been the typical Anglo-Saxon policy.

Yet a third factor which must be carefully considered in determining the proper relationship between railway and government is the degree of governmental efficiency. Such efficiency varies with many considerations, among which at least three are deserving of mention. One of these is the form of government itself. The centralization of authority characteristic of an autocracy is much better suited to the attainment of efficiency than is that broader distribution of authority and ready response to popular opinion which

exists in a democratic state. Prussia under the Hohenzollern régime was able to build a stronger railway organization and to operate the lines more efficiently than is possible under democratic control, and, if government ownership and operation of railways should be accepted in the United States, greatest success would undoubtedly be enjoyed under a plan which gave Congress a minimum of direct control over policies or finances. Another measure of governmental efficiency is the extent to which the "spoils system" has been eliminated in the selection of major and minor appointees and the degree to which the recognition of capacity and merit has been made possible under a civil service plan. A third important consideration is the extent to which opportunity is given under a governmental régime for the display of individual initiative and the degree to which that initiative is recognized by a reward, financial or otherwise. It is in this connection, perhaps, that governmental organization is the weakest, the world over, because of the development of a bureaucratic system with endless "red tape" and other impediments to aggressive action. And weakness in this particular is as fatal in governmental activity as it is in private.

As indicated previously, there is no *one best* relationship between railways and government: that which must be regarded as superior at a particular time in a given country may be quite unsatisfactory at another. It, therefore, behooves a people to face its problem with open mind, ready at all times to make such changes as seem clearly justified, but never acting precipitately because of mere dissatisfaction with an existing relationship—in governmental matters it is just as possible as in those of more direct concern to the individual, to leap "from the frying-pan into the fire." Neither preconceived notions of the proper relationship between railways and government nor a rigid economic philosophy should be permitted to control; rather, the guiding principle should be at all times "the greatest good to the greatest number."

LIMITATIONS OF POLICE POWER

As has been previously indicated, private ownership and operation of railways is characteristically accompanied by regulation. Inasmuch as such regulation must rest clearly and securely upon some definite ground or grounds, it is of fundamental importance that an examination of the bases of such control be made. The imposition of certain lesser burdens of a positive or restrictive character upon railway property has been justified as lying within the proper exercise of the police power. This power pertaining to a sovereign state has been variously defined, but perhaps the definition given by Ely is as clear and comprehensive as any that may be offered: "The police power is the power of the courts to interpret the concept property, and above all, private property; and to establish its metes and bounds." [1] A notable statement with respect to this power was also made by Justice Holmes, who declared: "The police power extends to all the great public needs. It may be put forth in aid of what is sanctioned by usage or held by prevailing morality or the strong and preponderant opinion to be greatly and immediately necessary to the public welfare." [2] As indicated by both of the statements given above, the police power is of vital importance in the modernization of property. Though theoretically belonging only to the states, since the Federal Government is one of delegated powers, in practice it has been utilized by both as the basis for important legislation. As illustrative might be mentioned those acts which govern hours of service and prescribe standards of safety for railways engaging in interstate commerce.

SUGGESTED BASES FOR GENERAL REGULATION

Far-reaching railway regulation must have for its foundation a broader and somewhat more secure base, however. It

[1] *Property and Contract*, Vol. I, p. 206.
[2] *Noble State Bank* v. *Haskell*, 219 U. S. 110.

becomes necessary, therefore, in the absence of specific constitutional provision for such regulation, to discover such a base. An examination of various judicial decisions, state and federal, shows that a number of different grounds have been urged upon which broad and thorough regulation of railways may rest. One of these is that the furnishing of adequate transportation facilities is essentially a function of government, a duty owed by the state to its citizens. In such case, if the work of the state be delegated to a private agency, it must be recognized by such agency that the state has the right to interfere in behalf of public interest. Too, since the state is guided by considerations of public welfare rather than of profit, it must yield to all reasonable demands of the state in efforts to serve social ends.

A second basis for broad regulation that has sometimes been urged is that of the enjoyment from government of special aid or grant—grants of authority or of privilege normally pertaining to government rather than to private enterprise. In the so-called Cotting case,[1] the United States Supreme Court said, "Whenever a purely public use is contemplated the state may and generally does bestow upon the party intending such use, some of its governmental powers. It grants the rights of eminent domain by which property can be taken . . . . at market value." In a further discussion relative to an enterprise such as that involved in this case, it denied the right of the state to regulate, upon the ground that "he acquires none of its governmental powers" through franchise from the state. The enjoyment of public aid in various forms, money, land, and so forth, has also been urged as a basis. To justify, however, the classification of a business as quasi-public *because* of the enjoyment of certain privileges, is to ignore the fact that none but enterprises which *are* public in nature may be permitted to enjoy such privileges; in short, to confuse cause and effect.

Yet another foundation suggested for the structure of

[1] 183 U. S. 94, *Cotting* v. *Kansas City Stock Yards Company.*

regulation is that of the exercise of a public trust. Said the Supreme Court of Pennsylvania in a case which necessitated the determination of whether the site of a public market was subject to condemnation for railway terminal purposes:

> The test whether a use is public or not is whether a public trust is imposed upon the property, whether the public has a legal right to the use which cannot be gainsaid, or denied, or withdrawn, at the pleasure of the owner. . . . The general public must have a definite and fixed use of the property, a use independent of the will of the private person or corporation in whom the title is vested; a public use which cannot be defeated by the private owner but which is guarded and controlled by the law. The true criterion by which to judge the character of the use is whether the public may enjoy it by right or only by permission. The test is not what the corporation owning the land may choose to do but what, under the law, it must do, and whether a public trust is impressed upon the land.... To constitute a public use, the property must be under the control of the public or of public agencies or the public must have a right to the use.[1]

Yet another and somewhat more widely urged basis of regulation has come to be known as the assumpsit principle. This was offered in the famous Munn case [2] and in the later Budd case,[3] in both of which the court was compelled to consider the basis upon which control might rest. In both instances the United States Supreme Court held that these properties, through offering their service to the general public, had *assumed* the obligation of serving all who might apply in so far as reasonable terms were met. Such an obligation, once accepted by the owner of property, subjected that property to the control of the public to such degree as might be necessary to safeguard adequately public interest.

The ground upon which regulation has been based most widely, and perhaps most soundly, however, is that of the

[1] *12th Street Market* v. *Philadelphia and Reading Terminal Co.* 142 Pennsylvania 586.

[2] *Munn* v. *Illinois,* 94 U. S. 113.

[3] *Budd* v. *New York,* 143 U. S. 517.

existence of monopoly within a field of vital import to the general public. The basis of such monopoly may be legal, resting upon an exclusive franchise, or that monopoly may arise out of conditions within the business itself. In either case, the existence of unified control within a given field, together with the dependence of large numbers upon fair and equitable treatment from that controlling agency, seems to be a sufficient basis for regulative action. As indicative of the position of the courts in this particular, the following is quoted from a decision of the Federal Supreme Court relative to the control of water rates in an irrigation district: "That it is within the power of government to regulate the prices at which water shall be sold by one who enjoys a virtual monopoly of the sale, we do not doubt. That question was settled by what was decided in *Munn* v. *Illinois,* 94 U. S. 113. As was said in that case, such regulations do not deprive a person of his property without due process of law." [1] This statement is of interest not alone because of the position taken by the court in this particular case but also because it indicates the existence of yet another ground upon which the court justified regulation in the Munn case. Even in those cases in which some other ground was urged as a basis for governmental interference, the question of monopoly in a field of public significance seems always to lurk in the background. Indeed, an examination of the history of the scope of regulation would seem to reenforce the conclusion that the basis of governmental interference lies primarily in the failure of competition, or of other forces in the social order, to give society adequate protection in fields of fundamental importance to the body politic.

CONSTITUTIONAL BASIS FOR GOVERNMENTAL ACTION

In many jurisdictions, however, care has been exercised to avoid all possible uncertainty as to the status of railways

[1] *Spring Valley Water Works* v. *Schottler et. al. supervisors,* 110 U. S. 347.

with respect to public control. In more than a third of the state constitutions it is declared that the railway is a public highway and that railway companies are to be regarded as common carriers, thereby subjecting those instrumentalities to control under both common and written law. Of these states the greater proportion lie in the West, showing the tendency in later constitutions to fix the status of the railway beyond question. About a third of the constitutions also reserve to the state the power to take over all railways by the exercise of the right of eminent domain. These states again are largely western and include most of those which make specific declaration with respect to the common carrier status of railways. Another relatively common constitutional provision affecting railways, which is purposed to defeat the restriction imposed upon the granting body by the Dartmouth College decision, is the general reservation by the state of power to annul or amend any charter granted by it. Numerous constitutional provisions of a miscellaneous character are to be found, also, which endeavor to establish, beyond doubt, control over such matters as railway intersections and junctions, the consolidation of properties, voting, pooling, discrimination and so forth. Certainly where constitutional provision has been made for control along particular lines, the courts have been compelled to search but little for solid ground upon which the exercise of broad powers by the legislature in public behalf may be based.

Whether the power to regulate rests upon the police power, upon a more general principle, or upon a constitutional provision, it is only when a situation develops which makes positive action necessary that such power is actually exercised. In general, there are two conditions which encourage the use of this regulative power resident in government. In the first place, there are certain fields of business activity that are peculiarly susceptible to a perversion of public interest. Perhaps most conspicuous among these is the railway field; in dealing with this great enterprise even

complete freedom of competition has failed to secure to the patron that consideration which he may rightly demand from a common carrier. Another condition, less often urged in the railway field, perhaps, than in certain others but nevertheless applicable to it, which would seem to justify public interference, is a wide disparity between the bargaining power of the two parties concerned, as in the case of employer and employee, or of monopolist and purchaser. Whatever may be the occasion of the disparity between the parties at interest, such disparity results in the subordination of the interests of the one, usually a large group, to the interests of the other, often the few. In either case, whether the business be one in which public interest is peculiarly susceptible to betrayal or one in which a great difference in power exists, positive regulatory action becomes not only desirable but inevitable at the moment any considerable portion of the public suffers because of unfair treatment.

JUDICIAL FUNCTION IN REGULATION

As has been stated in discussing the railway corporation, the exercise of regulative control is shared by the judicial and the legislative departments of government. The courts possess, in the entire absence of constitutional provisions or of legislative action of a positive character, the power of negative regulation which rests upon the common law obligations of carriers. The ineffectiveness of this negative action early became so apparent, however, that it was seldom invoked by shippers against corporate imposition. The judiciary has functioned far more importantly, therefore, in the control of those enterprises which are "burdened with the public interest" through their examination and interpretation of positive regulations which proceed from legislature or, more recently, commission. From the earliest exercise of positive control by law-making bodies in the United States, it has been recognized that the courts must interpret all regulatory provisions, whether constitutional or statutory

in character, and that they must, furthermore, apply such provisions in a reasonable and equitable manner.

With the development of regulation, however, the judiciary has come to function in another and perhaps more significant rôle in positive regulation. In *Munn* v. *Illinois,* the cornerstone of modern regulation, the United States Supreme Court declared its powers limited to the determination of whether the legislature had the right to regulate certain enterprises and to the related question as to whether the elevator business fell within that field. When the question was raised as to the right of the owner of such property "to a reasonable compensation for its use, even though it be clothed with a public interest," the court declared that practice has been otherwise, adding, "to limit the rate of charge for services rendered in a public employment, or for the use of property in which the public has an interest, is only changing a regulation which existed before. . . . We know that this is a power which may be abused; but that is no argument against its existence. For protection against abuses by legislatures, the people must resort to the polls, not to the courts." [1] That this position with respect to the scope of judicial authority over legislative enactments was not destined to be final, appeared 10 years later when the United States Supreme Court, although upholding legislation enacted by the state of Mississippi for the regulation of railway charges, declared, with respect to the extent of the power to regulate, that "This power to regulate is not a power to destroy, and limitation is not the equivalent of confiscation. Under pretense of regulating fares and freights, the state cannot require a railroad corporation to carry persons or property without reward; neither can it do that which, in law, amounts to a taking of private property for public use without just compensation, or without due process of law." [2]

Nevertheless it was not until 1894 that positive regulation

[1] *Munn* v. *Illinois,* 94 U. S. 113.

[2] *Stone* v. *Farmers Loan & Trust Co.,* 116 U. S. 307.

was scrutinized by the highest court of the land in the light of the so-called constitutional guarantees. In that year, however, certain rates fixed by the Texas Railroad Commission were challenged, in behalf of the railways upon which they were imposed, as unjust and unreasonable. In this case the United States Supreme Court stated its position thus: "It is doubtless true, as a general proposition, that the formation of a tariff of charges is a legislative or administrative rather than a judicial function. Yet it has always been recognized that if a carrier attempted to charge a shipper an unreasonable sum, the court had jurisdiction to inquire into that matter and to award to the shipper any amount exacted from him in excess of a reasonable rate; and also in a reverse case, to render judgment in favor of the carrier for the amount found to be a reasonable charge. The province of the courts is not changed, nor the limit of judicial inquiry altered, because the legislature instead of the carrier prescribes the rates. The courts are not authorized to revise or change the body of rates imposed by a legislature or a commission . . . . but still there can be no doubt of their power and duty to inquire whether a body of rates prescribed by a legislature or a commission is unjust and unreasonable, and such as to work a practical destruction to rights of property and, if found so to be, to restrain its operation." [1] Upon the basis of the position thus stated, the court, after an examination of the effect of the rates in question upon the financial standing of the International and Great Northern, affirmed the holding of the lower court in so far as it restrained the Texas Railroad Commission from enforcing the particular schedule of rates established by it and challenged in this case.

The power of the courts as set forth in *Reagan* v. *Farmers Loan and Trust Company,* and as maintained by them in clear and unmistakable fashion since that time, permits them to adjudge regulatory acts of a positive character, emanating from a coordinate branch of government, to be unconsti-

[1] *Reagan* v. *Farmers Loan and Trust Co.,* 154 U. S. 397.

tutional. This situation is peculiar to a country possessing a written constitution such as does the United States. Those "constitutional guarantees" which have been invoked with greater or less success by railway corporations to secure the invalidation or modification of restrictive regulations have been several in number. Failure to give equal protection to the rights and property possessed by such common carriers has been urged. It is often contended, too, that due process of law was not observed, and also that just compensation for the use or for the possession of property had been denied by the application of specific regulatory acts. Another guarantee which has featured in certain cases in which the constitutionality of an act has been challenged, is the right of judicial review and not infrequently has it been contended that the enforcement of certain statutes or commission orders would represent an impairment of contract, railways being denied, under such control, certain powers conferred upon them by charter grants. The final guarantee which has been invoked to the end of defeating public control of carriers is that one which protects witnesses against efforts to compel from them self-incriminatory testimony. In certain instances legislative or commission action has been challenged as to constitutionality upon but one of these grounds; more frequently, however, several have been urged in the hope that, upon the basis of one or another of them, sufficient cause might be found by the courts for invalidating the objectionable act or order.

POSITIVE REGULATION BY SPECIFIC LEGISLATION

In contrast with the judiciary which, in the absence of positive regulative action, can act merely in a negative manner and, in the face of such action, may merely examine requirements as to their constitutionality and interpret and apply them if found not repugnant to the fundamental law, the legislature may act in a positive manner. As stated by the Supreme Court in the so-called Maximum Freight Rate

case,[1] "It is one thing to inquire whether the rates which have been charged and collected are reasonable—that is a judicial act; but an entirely different thing to prescribe the rates which shall be charged in the future—that is a legislative act." As indicated in preceding paragraphs, this power of positive regulation was early conceived to be absolute and final; but, through a series of decisions, it has become a well-recognized principle that the legislature must act within limits set by constitutional provisions. In consequence, only such positive control as meets the various constitutional guarantees has secure footing before the courts. Though this power of positive regulation resides in the legislature alone, it may be exercised in either of two ways. That body's power may be employed directly through the enactment of specific legislation which definitely prescribes rates, fares, classifications, conditions governing the issuance of securities, and even service. Most conspicuous among such legislative enactments have been, of late years, the Two-Cent Fare laws; in earlier years, statutes of the character of the famous Potter law of Wisconsin. But this method of exercising control over railways proved unsatisfactory, on the whole, because of its relatively inflexible character in the face of conditions which vary widely among places at a given time and even more strikingly from time to time. Some more satisfactory method of exercising control was early sought, therefore, and a solution found in the commission.

POSITIVE CONTROL BY COMMISSION

The regulation of railways by commission has become, during the last score of years, characteristic of American federal and state control because this method most effectively serves public interest. To make such control possible despite state and federal constitutional prohibitions against the delegation of legislative power, it has been necessary

[1] *I. C. C.* v. *Cincinnati, New Orleans and Texas Pacific Railway Co.*, 167 U. S. 479.

that the law-making body enact a general law declaring that rates, services, and so forth, shall be reasonable. Such a law then confers upon an administrative body or commission the power to determine, in specific cases, the *meaning* of the term reasonable. As put by the Minnesota Supreme Court in a case involving the regulation of capital stock issues, after recognizing the power of the legislature to regulate in such matters, "In the exercise of this right, it may pass a statute providing generally for what purposes and upon what terms and conditions and limitations an increase in capital stock may be made and confer upon the commission the administrative duty of supervising any proposed increase of stock. It may also delegate to the commission the duty of finding the facts in each particular case and authorize and require it, if it finds the existence of facts that bring the case within the statute, to allow the proper increase; otherwise to refuse it." [1] However, this same court adds that any statute "which attempts to authorize the commission, in its judgment, to allow an increase of the capital stock of a corporation for such purposes and on such terms or conditions as it may deem advisable, would be a delegation of legislative power and void."

This type of regulation, under which only general standards are fixed by the legislature, has proved so superior to direct control that the plan has been adopted almost without exception by the various states and by the Federal Government, special laws being few in number and limited in scope. The initial advantage of commission control lies in the ease of adjustment to changing conditions and needs, though an even more important one is that a commission, familiar with the problem and sitting constantly, is much better able to secure all needed facts and to handle knotty problems successfully, than is a legislature, even though it may operate under ideal conditions and in an ideal manner. And experience shows the need of maximum wisdom in dealing with the railway problem.

[1] *State* v. *Great Northern Railroad*, 100 Minn. 445.

PROBLEM OF STATE VERSUS FEDERAL JURISDICTION

It has been shown that the regulation of railways is shared by the legislature and the courts. In the United States, however, a further division exists between the two distinct governmental units, state and federal, each of which possesses legislative and judiciary machinery. Due to this complex situation the problem of jurisdiction has been among the most difficult to solve in the regulation of railways in the United States. By the Constitution of the United States exclusive control of interstate as well as certain other types of commerce is given to the Federal Government, but the scope of such federal action was not clear until the courts had determined where the line lay between state and interstate commerce. The final adjudication of this question held state commerce to be that which moved wholly within a single state, while interstate commerce included not only movements from one state to another but also movements from one point within a state to another point within the same state where the movement was in part outside the boundary of the state of origin and destination.

THE ADJUSTMENT PRIOR TO 1913

The problem of jurisdiction, however, as between state and federal governments has not been settled so easily as this statement might indicate. Indeed, a succession of historic cases has been concerned with the location of the boundary line between state and federal control. In the case of *Peik* v. *Chicago and North Western Railway Company*,[1] the United States Supreme Court held, in a decision handed down in 1877, that, in the absence of federal action, a state might "provide by law for a maximum charge . . . . for fare and freight upon the transportation of persons and property outside the state and brought within it, or taken up inside and carried without." With the development of

[1] 94 U. S. 164.

the railway net and the increasing significance of through traffic the untenable character of this position became evident, however, and in 1885 the United States Supreme Court, in the Wabash case,[1] reversed its earlier position and held that, without regard to the existence or absence of federal control, state regulation may be permitted to extend only over movements of a purely intrastate character. Thus the matter stood for a period of 28 years.

RECENT DEVELOPMENTS

In 1913, however, in a case resulting from the prescription of a certain schedule of rates upon intrastate movements by the Minnesota Railroad and Warehouse Commission, the United States Supreme Court intimated that not only did the Federal Government have exclusive power over interstate traffic but that, if intrastate regulation were of such character as to prejudice interstate movements, the Federal Government might even extend its control over traffic moving wholly within the state.[2] A year later the Supreme Court, in the famous Shreveport case,[3] followed out in its decision the line of argument laid down in the Minnesota Rate cases just mentioned. Since rates fixed by the Texas Railroad Commission upon intrastate movements clearly prejudiced interstate traffic, the Supreme Court recognized the right of the Interstate Commerce Commission to compel a readjustment of such Texas intrastate rates as discriminated against interstate movements out of Shreveport. Later, in the Illinois Fare case[4] this power to interfere within the state to the end of removing prejudice against interstate commerce that arises from intrastate regulations was

[1] *Wabash, St. Louis and Pacific Railway Company* v. *Illinois,* 118 U. S. 557.

[2] Minnesota rate cases, 230 U. S. 352, *Simpson et. al.* v. *Shepard; Same* v. *Kennedy; Same* v. *Shellaber.*

[3] *Houston, East and West Texas Railway Company* v. *U. S.,* 234 U. S. 342.

[4] *Illinois Central Railroad Company* v. *State Public Utilities Commission of Illinois, et. al.,* 245 U. S. 493.

more carefully defined by the Supreme Court than it had been in the previous case. The court refused to support the Interstate Commerce Commission in its readjustment upward of intrastate passenger fares throughout the entire state of Illinois. This refusal was rested upon the declaration that the Commission had not distinguished clearly between intrastate traffic which was so closely related to interstate movements that a rate adjustment was necessary to eliminate prejudice against the latter, and that other larger portion of Illinois intrastate passenger traffic which bore no such relationship to interstate movements and over which, therefore, the Federal Government had no power to exercise control.

THE SIGNIFICANCE OF THE TRANSPORTATION ACT

To remove uncertainty in so far as uncertainty could be removed with respect to a question so involved, the Transportation Act of 1920 embodied in statutory form the principle laid down in the Shreveport decision. At present, therefore, it would appear, both upon the basis of judicial determination and of statutory declaration, that the scope of state regulatory action is distinctly limited with respect to railways, except as state legislatures and commissions act closely in accord with federal agencies. Such a conclusion seems to be especially strengthened by the holding of the U. S. Supreme Court in a recent case[1] which involved the power of the state of Wisconsin to enforce its Two-Cent Fare law in the face of a rate of $.036 per mile which the Interstate Commerce Commission held to be reasonable for interstate passenger movements. The state suffered defeat in its effort, the court holding that the lesser charge would not only discriminate against interstate and in favor of intrastate movements but would also throw upon other traffic an increased financial burden, if adequate revenues were

[1] *Railroad Commission of Wisconsin* v. *Chicago, Burlington and Quincy Railway Co.*, 257 U. S. 563.

to be secured to the railways of that rate district within which Wisconsin lies. The economic and administrative explanation of this movement toward federal control will be set forth more clearly in following chapters.

In this chapter an effort has been made to set forth certain of the basic principles of regulation and to indicate briefly the general scope of action of the various agencies and governmental units. In the succeeding chapters a more detailed discussion of the actual development of regulation will be presented, an effort being made to indicate the grounds, political and economic, upon which the gradual changes which have come about, or which ought yet to be made, are based. Because the judiciary was the first to act in the protection of public interest, even though that action has been somewhat ineffective, and because that branch of government occupies an important position by virtue of its examination and interpretation of positive regulations, attention will first be given to this agency of control.

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See also: 142 Pa. 586 and 100 Minn. 445.

XXVIII

JUDICIAL CONTROL OF RAILWAYS

Tripartite division of governmental functions. Development of judicial supremacy. Bases of judicial action in the railway field. The injunction—types and conditions of issuance. Our dual judicial machinery. Common law basis of judicial control of rates; of discrimination; of service. Judicial action under positive regulation. Extent and gains. Labor disputes and equity powers of the courts. Weapons of industrial conflict in the railway field. Legal status of those weapons. Railway receiverships and the courts. Peculiar nature of railway receiverships. Termination of the receivership. Judicial functions pending settlement. Course and extent of receiverships. Weaknesses of judicial control of properties. Possible solutions.

THE framers of the early American constitutions, both state and federal, accepted without amendment or reservation that tripartite division of governmental functions so strongly advocated by Blackstone and by Montesquieu. In accordance with the political doctrine laid down by these two men, who exerted tremendous influence upon the leading minds of America during the latter part of the eighteenth century, an endeavor was made to separate clearly as legislative, executive, and judicial, the powers and functions to be exercised by government. "The accumulation of all powers, legislative, executive, and judicial, in the same hands, whether of one, a few, or many, and whether hereditary, self-appointed, or elective, may justly be pronounced the very definition of tyranny," said Madison. To avoid such a situation conscious effort was made so to draft fundamental laws that each department would operate quite apart and distinct from the others, all to stand upon a coordinate basis. To carry out this principle of division of functions the more effectively and to make clear and definite the lines of demarcation, the powers of each department were enumerated and expressed. Thus, in the Constitution of the United States, Article I, dealing with Congress, in which

body all legislative functions are vested, contains in Section 8 a specific enumeration of the powers which may be exercised by it, while the section following, together with certain later amendments, places upon it certain definite limitations. Similarly, in Article II provision is made for the creation of the executive branch of government of which the president is chief, and in the second and third sections of this article appears a definite enumeration of the powers which may be exercised by him. In Article III provision is made for a judiciary which shall exercise all judicial powers, and in its second section appears a statement of their scope, only slightly modified by a later amendment:

> The judicial power shall extend to all cases, in law and equity, arising under this Constitution, the laws of the United States, and treaties made, or which shall be made, under their authority; —to all cases affecting ambassadors, other public ministers and consuls;—to all cases of admiralty and maritime jurisdiction;—to controversies to which the United States shall be a party;—to controversies between two or more States;—between a State and citizens of another State;—between citizens of different States;—between citizens of the same State claiming lands under grants of different States, and between a State, and citizens thereof, and foreign States, citizens or subjects.

However sound in theory a scheme of government may be which calls for the separate and coordinate functioning of several departments, in practice it has been shown undesirable and, indeed, impossible of attainment. Instead of smooth and successful operation at all times, jealousy and conflict sometimes develop which lessen governmental efficiency or, perhaps, which stall the machinery entirely when serious differences arise. To make government function more effectively there has developed a considerable degree of cooperation among the various departments. In fact, with the evolution of government to meet changing economic and social needs, there has developed an overlapping which often makes it difficult to determine where, upon the basis of current political practice, a particular power or function belongs.

DEVELOPMENT OF JUDICIAL SUPREMACY

No phase of this adjustment has been more interesting and more significant than the development of what might be termed judicial supremacy in a government characterized as popular in form. This dominance of the judiciary is the result of several factors. One of the more important of these is the need, in a country which operates under a written fundamental law, of examining statutory enactments in the light of constitutional provisions, for which task no body possesses greater skill and training than the judiciary. This acceptance of judicial determination of the constitutionality of legislative enactments was furthered during the formative period by the recognized capacity and leadership of the men serving upon the bench, outstanding among them being the great jurist, John Marshall. Then, too, the conservative character of the people of the United States was a further aid to the establishment of the principle of final determination by the courts.

Judicial power has extended into no field more markedly and more positively than into that which is accorded to the legislature by the Constitution. This extension has been the consequence of both the application and the interpretation of statutory enactments. Though many instances might be cited of what may properly be termed judicial law-making, perhaps no better illustration of the influence which the courts exert in this connection can be found than the adjudication of the Sherman Anti-Trust Act of 1890. This Act was passed in response to an insistent popular demand for legislation against the so-called "trusts" which were developing during this period, and seems to have been discussed solely with reference to industrial combinations. During early years it was considered as applicable only to them, but in 1897 the Act was applied to the railways and, still later, even to combinations of labor, neither of which seems to have been considered by Congress in 1890. Yet not alone did the United States Supreme Court extend the

scope of the Sherman Act: it accomplished equally unexpected results through interpretation. In the Trans-Missouri Freight Association case [1] in which the law was first applied to common carriers, the Supreme Court held that the law prohibited *all* combinations in restraint of trade, quite without regard to the *reasonableness* of such restraint. Fourteen years later, however, in the famous Standard Oil decision,[2] the Supreme Court assumed a position which reversed its earlier holding; it declared that the intent of Congress had been merely to put in statutory form the old common law prohibitions upon combinations. Combinations were to be adjudged illegal, therefore, only as they represented an *unreasonable* restraint of trade. Congress could have changed the Act no more effectively by amendment than did the Supreme Court through its extension in application, and its modification through the effective insertion of the concept of unreasonableness. It is evident that legislation is uncertain in scope and in meaning until finally interpreted by the highest court of the land. Judge-made law is not a theory under our form of government, but a fact.

BASES OF JUDICIAL ACTION IN THE RAILWAY FIELD

Action by the judiciary with respect to railways may be based upon several grounds. It may find its justification in constitutional provisions such as appear in the fundamental law of many states or, more commonly, it may rest upon one or another of the many statutes enacted to the end of establishing more effective public control over that essential industry. Should both constitutional and statutory grounds be lacking, however, there still resides in the courts the power to act in the protection of public interest. Upon the basis of obligations imposed upon carriers by the common law, the courts have long acted to secure for the

[1] *U. S.* v. *Trans-Missouri Freight Association,* 166 U. S. 290.

[2] *Standard Oil Company of New Jersey* v. *U. S.* 221 U. S. 1.

shipper a reasonably adequate and continuous service at reasonable rates, without unjust discrimination. Furthermore, the courts may act upon the basis of equity powers and it is upon this basis that the development of judicial control has been most conspicuous in the railway field during the past half-century. Equity action is highly important to social well-being: there is little limitation to its scope beyond the judgment of the court as to the requirements of public interest and this limit the courts have gradually extended to meet the needs of an increasingly complex economic and social life. These equity powers, resident in the judiciary, have been exercised conspicuously along two lines in an effort to conserve or further public welfare, the settlement of difficulties arising out of labor disputes and the control of insolvent properties through receivership.

THE INJUNCTION—TYPES AND CONDITIONS OF ISSUANCE

The injunction is the usual instrument of positive action by the courts. Of injunctions there are two distinct types, the one which is restrictive or prohibitive in character and forbids a certain act or acts, the other mandatory in nature and commands the performance of some specific act. Of the two the former is issued more often, though in certain situations involving a violation of law, be it constitutional, statutory, or common, the mandatory type has found use. As to the time for which issued, injunctions are further classified as temporary and permanent. The temporary order is issued to meet an emergency and frequently without an adequate presentation of facts—often, indeed, upon a mere statement of facts by the petitioning party. It has, in consequence, so lent itself to abuse that a useful and necessary instrument has come into undeserved disfavor. No injunction is made permanent, however, except after a careful examination into the merits of the case.

Injunctions issued by the courts at an earlier date were of the type properly termed specific, since by them certain

named persons were ordered to do, or not to do, certain definite acts. This type of injunction, however, proved inadequate to meet conditions which arose and, in consequence, the so-called "blanket" injunction has come into more frequent use. Under the latter type not only persons specifically named but also "all other persons whomsoever" fall within the scope of the order and the acts included embrace, beside those specifically named, all others which seek to effect the same end, with the court as sole judge as to how far the order should extend. As might be expected, the "blanket" order has given rise to much complaint because its uncertainty tends to tie the hands of even those not specifically named in the order, if freedom from prosecution is the major consideration.

It is exceedingly difficult to state with accuracy the particular circumstances under which an injunction may properly issue. In one case it was declared that the injunction can be employed only when the remedy at law is inadequate —"depending on whether the injury done or threatened is of such a nature that, when accomplished, the property cannot be restored to its original condition, or cannot be replaced by means of compensation in money; or whether full compensation for the entire wrong can be obtained without resort to a number of suits." [1] However, the issuance is at the discretion of the court and therefore wide differences appear among the various jurisdictions. On the whole, it may be said that an injunction properly issues to prohibit an illegal act with consequences far-reaching and damages difficult of measurement, also in such cases as seem to necessitate judicial interference if justice is to be assured. The injunction has a twofold advantage over ordinary legal procedure. In the first place, if the order be disobeyed, immediate punishment is administered by the judge without the characteristic trial delay. Furthermore, punishment is more certain because conviction is easier—it is necessary merely to satisfy the judge who issued the order of violation.

[1] *Barr* v. *Essex Trades Council,* 30 Atlantic 881.

OUR DUAL JUDICIAL MACHINERY

Since the nature of judicial action with respect to constitutional and statutory provisions is discussed quite fully in the chapters dealing with state and federal regulation, no detailed presentation is necessary at this point. It remains, therefore, to discuss judicial enforcement of the common law obligations of the carriers. One of the first, and likewise one of the most difficult, questions incident to judicial control arises from the dual character of our government. Under the constitution certain powers are given the Federal Government; all others not so specifically delegated are reserved to the states. In the former field the jurisdiction of federal courts appears to be original and final while in the latter the state courts have complete control. Yet many questions which are clearly of a federal character are originally brought to trial in state courts, and many important questions which first seem to involve only state matters have some federal aspect which frequently results in a demand that the United States Supreme Court give a final decision.

REASONABLE RATES UNDER THE COMMON LAW

In the absence of legislative action prescribing rates and service, or provision for an administrative body by which such requirements are to be specified, the courts function along various lines with respect both to rates and to service. To afford the shipper a protection which has not been accorded him by statutory law, the courts have sometimes acted upon the basis of equity powers to prevent increases in rates. Perhaps the most conspicuous instances of interference to this end are to be found in the Southern Pacific case in 1898 and the action taken in 1910 to prevent a general increase in rates just prior to the passage of the Mann-Elkins Act. In the former case, the Southern Pacific proposed a sharp increase in rates upon iron and

steel products from Colorado points to the Far West. Against the collection of the proposed rates the Colorado Fuel & Iron Company secured an injunction on the ground that the higher charges would destroy its coast business and that no compensation could be secured commensurate with the loss suffered: recovery upon the basis of the difference between the old and the new rate, on such slight traffic as might still move, would in no sense measure the injury suffered by the loss of business. The situation in 1910 differed widely, however, from the one just described, since here a general advance in rates was involved. To delay such an advance until the Interstate Commerce Commission was given power to suspend proposed increases pending investigation, an injunction was obtained by the government against their collection. In consequence, the higher tariffs were withdrawn and the old rates were continued in force until after Congress had bestowed upon the Commission the power to deal with such a situation.

The courts have, in a certain few instances, acted to block reductions in rates as well as to prevent increases as indicated above. In such cases action rests upon either of two grounds: the court may interfere to protect the interests of a shipper or to safeguard investors in a certain railway property against an undue depletion of revenues by cut-throat competition. Such interference may be directed against either open or secret lowering of rates. A peculiarly interesting instance of action to prevent open rate-cutting is found in connection with a rate war which developed in the late nineties between the Seaboard Air Line and Southern Railway. The former road took the initiative in what promised to develop into a ruinous struggle for both properties, as well as to be injurious to certain groups of shippers which did not enjoy the abnormally low rates made at competitive points. The rights of this body of prejudiced shippers was remedied by an injunction ordering earlier rates to be restored, but the more interesting action was that initiated by the owners of certain railway

bonds. To protect the property upon which these bonds were secured, an injunction was issued upon the ground that the continuation of ruinous competition could result only in the destruction of the railway properties in question and that no remedy for this situation existed at law. Action by the courts to prevent secret reductions in rates has been based either upon the illegality of discriminatory practices under the common law or upon some statutory enactment. Prior to the strengthening of rebating provisions of the Interstate Commerce Act, the Interstate Commerce Commission secured, through the Department of Justice, injunctions which blocked, or at least made more difficult, the secret rate-cutting then so general and so disturbing.

COMMON LAW STATUS OF DISCRIMINATION

The courts have also acted to eliminate discrimination in rates. In the first cases coming before them, the courts held that from early times the carrier had been free to serve different individuals upon different terms without limitation except that charges were, under all circumstances, to be reasonable. However, with the development of trade during the century following 1800, and the increasing interdependence of individuals, it became essential that this earlier position be modified. The first step in transition was a recognition by the courts that the lesser charge might be regarded as evidence of the unreasonableness of the greater. From this position it was not difficult for the more progressive judges to add to the common law obligations previously recognized, that of serving all without unreasonable discrimination. Indeed, as early as 1874, the Supreme Court of New Jersey declared, through Mr. Justice Beasley, "A person having a public duty to discharge is undoubtedly bound to exercise such office for the equal benefit of all and, therefore, to permit the common carrier to charge various prices, according to the person with whom he deals, for the same services, is to forget that he owes a duty to the com-

munity. . . . I can see no reason why, under legal rules, perfect equality to all persons should be exacted in the dealings of the common carrier, except with regard to the amount of compensation for his services." [1] In 1885 in a case involving special reductions in rates by the Lake Shore and Michigan Southern Railway to the Standard Oil Company the Ohio Supreme Court declared, concerning this practice, "It would build and foster monopolies, add largely to the cumulative power of capital and money, and drive out all enterprise not backed by overshadowing wealth." [2] Upon that ground it enjoined the railway from according to the Standard Oil Company rates lower than those given competitors. Although recognizing that the cases condemning unreasonable discrimination on common law grounds are fewer than those of an opposite trend, one writer declares, "This principle was made law in many states by an impatient public who demanded statutes so that there could be, in the future, no equivocations, before many courts had time to express their opinion and before other courts had time to recant. And, upon the whole, it is claimed with confidence that outright personal discrimination is opposed to modern common law principles." [3] Could stronger evidence be adduced that, as the need develops for further protection, the courts discover a basis for action in common law if the legislature fails to act in such manner as to safeguard public interest?

RAILWAY SERVICE AND THE COURTS

Despite the fact that judicial action has generally been concerned with some phase of the rate question, a sufficient number of cases have been decided to make it appear that the courts may act in a definite manner, either to eliminate

[1] *Everett Messenger et. al.* v. *Pennsylvania Railroad Company,* 36 N. J. L. 407.

[2] *Scofield* v. *Lake Shore and Michigan Southern Railway Company,* 43 Ohio St. 571.

[3] Beale and Wyman, *Railroad Rate Regulation,* p. 670.

discrimination in service or condemn a particular service as inadequate. In the many cases which have come to the courts for decision involving preferential service or unusual privileges to one shipper as compared with another, the holdings have been consistently similar to those concerning rates. In the matter of compelling continuous service, holdings are less uniform: carriers in certain jurisdictions have been permitted to abandon their undertaking in whole or in part without regard to charter provisions while in others positive effort has been made to compel even such properties as may be in serious financial straits to fulfil continuously all charter obligations under penalty of forfeiture, or contempt if forfeiture be no penalty. Here it is, perhaps, that the "rule of reason" may be said to apply, public interest and well-being receiving primary considerations.

SCOPE AND EXTENT OF JUDICIAL ACTION

Beyond the obligation to act in the absence of legislation concerning rates or services, the courts have an important work. As indicated in a previous chapter, a dual obligation rests upon them in connection with such legislation. In the first place, the courts determine whether the legislative requirements are in accord with the Constitution and, further, if so found, it is by the courts that these laws must be interpreted and applied. In the case of statutes which definitely prescribe rates, services, or practices, little scope for interpretation exists but, in the case of other legislation of a more general character, this power of the court is great. In the application of statutes the court is again faced with heavy responsibility and finds its problem particularly difficult with respect to discrimination, service or rate: it is difficult to secure evidence and there are no definite standards as to what constitutes unreasonable preference.

Before closing the discussion of judicial control of rates and service, it may be well to indicate the extent to which the courts have seen fit to exercise their powers. Regarding

service it is difficult to give a positive answer because the courts have concerned themselves so little with this phase of the carrier obligation, though to judge the reasonableness of a particular service is perhaps easier than to give a decision with respect to rates. The adequacy with which the carrier absolves its service responsibility can be judged with considerable accuracy—in fact, it is not far wrong to say that, within limits, absolute standards of service can be established, while there appears to be no sound basis in law or in fact for believing that any such absolute standard of reasonableness can be fixed with respect to rates. Yet the many decisions involving rates show, as indicated in the preceding chapter, that in this particular the courts have acted in a definite and helpful manner and this is true in both the absence and the presence of positive regulation. From the position taken in the Munn case, in which it was held the courts had no power to interfere with legislative enactments, however unreasonable, they had swung within a score of years to one in which they exercised broad powers, even invalidating, when held confiscatory, rates set by state authority.

In the years prior to the development of positive control over the railways, it is clear that the power of the courts to interfere upon the basis of common law obligations exerted a restraining influence upon them, particularly with respect to rates. It is equally clear, however, that judicial control in this field was both inadequate and unsatisfactory: long experience showed that it consumed an amount of time quite out of proportion to any results that were thus obtained. With crowded calendars and with the opportunity of appeal available, final adjudication was often so long postponed as to essentially defeat the purpose of the action. Then, too, legal action against unreasonable charges and practices is expensive to the shipper and the possibility of an adverse decision is so strong a deterrent that shippers, with a just cause for action, often suffer in silence rather than risk the heavy expense involved. Finally, judicial control has been,

and must always remain, inadequate because of its negative character. Even though a particular rate is adjudged unreasonable and an award made which is based upon the excess of the rate collected above that which the court holds to be a reasonable charge, the battle is not won. The railway is at liberty to assess any charge it sees fit for the future, provided it does not equal or exceed the rate declared unreasonable—the courts have no power to force the carriers to accept a reasonable tariff. Helpful though judicial action may have been, it was inevitable that such control should soon be superseded by positive control through legislative action, state and federal.

LABOR DISPUTES AND EQUITY POWERS OF COURTS

In addition to the enforcement of common law obligations upon the railways, the courts have functioned importantly upon occasions in the handling of labor difficulties. Judicial action here clearly rests upon the equity powers of the courts and has been exerted in conspicuous instances in behalf of both the railways and the public. Though it is conceivable that these powers might be employed in behalf of labor also, no important case of this character had arisen. Labor difficulties in the railway field long seemed to be little or no concern to the public, but during the past 30 years the situation has changed. The development of strong organizations among the various groups of railway workers and the high degree of cooperation among those which occupy key positions in the railway industry, have made it possible for railway labor to do more than merely embarrass a single property and a small portion of the public, through interference with continuous operation. Of late years labor disputes have imperilled the service of great areas, even the nation as a whole, and threatened a complete paralysis of transportation facilities for a sufficient time to injure greatly both the carriers and the public. This recent development, in the face of a vital need for continuous operation, has

compelled the courts to extend their scope of action in an effort to protect public welfare the more adequately.

WEAPONS USED IN LABOR CONTROVERSIES

Before discussing the nature of judicial action in labor disputes it may perhaps be well to call attention to the character of the weapons employed by the two contestants involved, the railway workers and the carriers. Most conspicuous of the weapons employed by the workers in this, as in the industrial field, has been the strike. This weapon was not particularly effective for many years because the strike usually covered but a single property and the unions lacked solidarity. With increasing loyalty to the organization and with the development of higher strategy through experience, the strike has now become a serious danger, particularly in the hands of those concerned directly with the movement of trains. Railway labor has employed picketing as an aid to the strike in the hope that sufficient men might be deterred from continuing or seeking employment to block, or at least seriously embarrass, continuous operation. A third weapon which labor has sought to use is the boycott, which has taken the form of a refusal to handle equipment from a road in bad standing with labor, rather than an effort to deflect traffic from its line. Violence has occasionally appeared, representing an effort on the part of the workers to force the carrier to terms. However, in no instance has it seemed to be the result of general policy—instead, of a discipline insufficient to curb the workers in a trying emergency.

The employer has sought to meet the strike, and such other weapons as labor employed, in three ways: with the strike breaker, the black list, and the injunction. For many years "the company" was quite successful in "breaking" strikes because of facts set forth above, but today it is only with great effort and at heavy cost that the more prosperous properties are able to withstand a "finish fight" with

the strongest of even the non-operating organizations. During the years of weak labor organizations in the railway field, it was possible to use the black list effectively, but that weapon has largely lost its force in the face of present conditions. Perhaps the most powerful weapon employed by the railways at all times and certainly the most effective during recent years has been the injunction, the use of which will be described in following paragraphs.

LEGAL STATUS OF WEAPONS OF CONFLICT

The strike as a weapon of industrial conflict in the railway field occupies a legal position differing little from that held by it in the general field of industry and trade. Although sporadic efforts have been made to have strikes of a normal character declared illegal by the courts, no success has attended these endeavors, even in the case of properties operated by receivers under the control of courts.[1] The only peculiar limitations upon the strike in the railway field, beyond the common law requirement that the strike shall not have as its purpose the injury of the employer, rest upon statutory enactments, these enactments arising largely out of the peculiar character of the railway industry. Three statutory limitations upon any preconcerted cessation of work in the railway field have been imposed. The first of these appears in state and federal statutes which prohibit the abandonment of equipment—engine, car, or train—en route to its regular destination, or the injury of equipment in such manner as to unfit it for immediate use. This statute applies peculiarly to those concerned with the operation of the trains and is designed to prevent unexpected and perhaps serious danger to life and property. A second limitation upon the action of labor rests upon that section of the federal statutes which prohibits the obstruction of the mails. It was upon the basis of this statute that the government so acted in 1894 as to break the "Debs Strike."

[1] *Arthur* v. *Oakes*, 63 Fed. 310.

In an effort to force certain concessions from the Pullman Company, the American Railway Union ordered that no member should handle Pullman equipment. In consequence, the operation of passenger trains and, therefore, the mails, was seriously embarrassed. This, together with the appearance of violence in Chicago, occasioned the issuance of an injunction by the United States Circuit Court, which prohibited all persons from interfering with either the movement of trains or the transportation of the mails over the railways operating into Chicago. The violation of this injunction brought into the city both state and federal troops, and the strike, weakened by the presence of troops, was broken by the arrest and imprisonment of its leaders. A third statutory basis for interference is the prohibition contained in the Sherman Act upon conspiracies in restraint of interstate trade and commerce. Although this Act was not purposed to apply to labor, it has been employed upon various occasions against the workers. Its most striking use was in connection with the issuance of the recent so-called "Daugherty injunction" to curb the activities of the shopmen in the strike begun by them and other lesser organizations July 1, 1922. To just what extent the courts will recognize the application of the Sherman Act to strikes affecting interstate commerce is as yet uncertain and must remain so until final adjudication by the Supreme Court, but the injunction issued by Judge Wilkerson of the United States District Court of Chicago hints at the imposition of effective restraints upon labor in behalf of public interest.

Picketing also occupies a position here quite like that held by it in other fields. To the extent that picketing is peaceful in character and non-intimidating in nature, there is no ground for interference with it. The use of violence, threats, or even milder forms of intimidation, however, may bring down upon those indulging in such tactics an injunction which will materially restrict their activities. In the past the courts have been somewhat liberal with organized labor in the matter of picketing practices, but,

during the recent shopmen's strike, the application of the decision of the United States Supreme Court in the case of the *American Steel Foundries* v. *Tri-City Central Trades Council* [1] resulted in judicial action very generally throughout the country which restricted the picketing activities of the organization within very narrow limits.

Because of the absence of any conspicuous instances of efforts to deflect business from a carrier, there seem to be no instances of action taken by the courts upon equity grounds against the use here of the boycott. If such instances should appear, the action would doubtless be similar to that taken by the courts in the so-called Ann Arbor case, which involved a boycott of equipment. In 1893 the engineers on the Lake Shore and Michigan Southern Railway were ordered not to handle cars received from the Toledo, Ann Arbor and Northern Michigan Railway upon which a strike was in progress. In response to an application by the latter carrier, the federal court issued an order requiring Lake Shore engineers to perform all regular duties of their employment so long as they remained with the road, though the right to quit their employment at will was recognized.[2] Violence, of course, has no legal status whatever and, in the face of even a serious threat thereof, the courts have always been ready to enjoin any and all parties who might be involved. It is upon the serious threat or the actual appearance of violence, in fact, that injunctions have most frequently been issued in railway labor controversies.

The normal response of a railway, just as of other enterprises, to a strike, is an endeavor to continue operations through the employment of non-union workers. Such action is never illegal, though of recent years it has proved increasingly less effective because of the extensive control of the unions over those who are fitted to perform the particular work in question. The legal position of the black-

[1] 257 U. S. 184.

[2] *Toledo, Ann Arbor and Northern Michigan Railway Company* v. *Pennsylvania Railroad Company*. 54 Fed. 746.

list is somewhat doubtful: although there are many state statutes which make it illegal, its infrequent use by the carriers and the ease of evasion have resulted in a paucity of final decisions concerning the constitutionality of such legislation. It appears from such federal decisions as are in point, however, that the validity of anti-boycott legislation is open to serious question, yet whatever the law, the minor use of the boycott justifies according it scant attention.

IMPORTANCE AND STATUS OF THE INJUNCTION

As is clearly indicated in the preceding paragraphs, the injunction has been for the railways a common and formidable weapon of offense and defense in labor controversies. This wide use has resulted from the considerable degree of success attendant upon its employment; without doubt it has served both to protect the property of the carrier and to weaken the position of labor organizations. However, too generous issuance by the courts has appeared sufficiently like abuse to enable labor to enlist popular support for the movement to establish limitations upon its use. Not only has this been true in individual states, statutes in certain states going so far as to be held by the courts as infringing upon judicial prerogatives, but action was also taken by Congress in the Clayton Act of 1914 to circumscribe the issuance of injunctions by any federal court. In this Act it was required, among other things, that temporary injunctions might issue only after notice to both parties, except as necessary to prevent immediate and irreparable injury. Such temporary orders may continue for but 10 days and can be renewed only for good reason. Furthermore, they must state fully the grounds for issuance and indicate with reasonable exactness the nature of the acts prohibited. It is further provided that injunctions in labor controversies may issue only when irreparable injury to property is threatened or when the remedy at law is inadequate. The law also prohibits the issuance of injunctions

against the strike, peaceful picketing, advice to strike or boycott, peaceful assembly, and the payment of strike benefits. Finally, the Act provides for jury trial, upon demand, of all cases alleging contempt of court, because of failure to observe the injunction, if the act prohibited be also a criminal offense under federal statutes. The only exception to this is in the case of acts committed in the presence of the court or of violation of an order sought by the United States. Such restrictions give labor a considerable degree of assurance against hasty and ill-advised action and yet the injunction remains available as an emergency weapon in the protection of private or public interest.

At the present time injunctions may issue, apparently, upon any of five grounds: to prevent the destruction of property, to check the intimidation of employees, to secure the performance of regular duties, to prevent any obstruction of the United States mails, and to block conspiracies in restraint of interstate trade and commerce. Although the Clayton Act was purposed to exempt labor organizations from the last named restriction, it is exceedingly doubtful if the constitutionality of that exemption will be recognized by the courts. For these purposes and for others which the courts have refused to recognize, as in the Northern Pacific case [1] the injunction has been sought in labor controversies because of the advantage which it gives. In this connection it might be said that there is little doubt but that the recent "Daugherty injunction" aided the railways in the shopmen's strike, and it is probable that its issuance at an earlier date would have assisted materially in accomplishing the unqualified defeat of this outburst on the part of labor against an essentially sound decision of a public body created to regulate in the interests of all. However little judicial interference may have accomplished of a positive nature in public behalf in respect to rates and service, it is clear that the gains have been greater and the justification clearer in the labor field.

[1] *Arthur* v. *Oakes*, 63 Fed. 310.

RAILWAY RECEIVERSHIPS AND THE COURTS

The third function of the courts with respect to the railways is discharged through the management of receivership mileage. In accordance with the bankruptcy laws of the United States, failure to meet obligations on the part of any individual or corporation makes it possible to summon that person, individual or corporate, before the court and to secure the appointment of an agent of the court, a receiver, to direct and conserve the property involved. In the railway field receivership has in some cases been due to the inability of the corporation to pay interest upon bonds, in others to meet current expenses, while in still others inability to meet accruing liabilities. Receiverships fall, roughly, into two groups: those which are enforced by the creditors and those sought by interests already in control of the property. In the former case, doubt as to the maintenance of security behind obligations or dissatisfaction with the conduct of the business by a management already in financial difficulties precipitates drastic action in the form of an application for the appointment of a receiver. This is the normal type of receivership and accords with the legal purpose of such plan. On the other hand, there has developed in the railway field, particularly, the "friendly" receivership; here the application to the court is made by, or in the interests of, the management of the property and has for its primary purpose the continuance of that management in control under the protection of the court. There are three main reasons for this type of receivership: a desire to escape the immediate pressure of obligations in the hope that some solution may be found during the period of court direction; to forestall some rival with which the dominant group in the property is involved in a struggle for control; and, finally, to gain a respite for the property during which the financial structure may be strengthened or efficiency increased sufficiently to assure solvency in the future. Though the courts have lent themselves to a generous use

of the friendly receivership, wittingly and unwittingly, little justification for such use exists except in the third case mentioned: in such a situation those in control of the property are actuated by a constructive and honest purpose and deserve consideration. Where the shelter of the court is sought merely to serve the interests of a selfish or perhaps inefficient management, there is no ground in justice and should be none in law for such protection.

PECULIAR NATURE OF RECEIVERSHIPS

The original purpose of a receivership, and a purpose which remains a dominant one in the commercial and industrial fields, was that of closing out the enterprise; the appointment of a receiver by the court was therefore tantamount to passing the death sentence upon the business. In general, either of two methods may be followed in the handling of a defunct enterprise; the property may be sold as it stands to some purchaser whose intent is to resume operations, or the more drastic step may be taken of dismantling the plant and realizing as much as possible upon its parts. In any case, however, a discontinuance of operations is characteristic of the handling of the affairs of an ordinary enterprise in the hands of a receiver. But here it is again that the nature of the railway business shows itself in sharp contrast to that of the ordinary enterprise—a cessation of operations on the part of a railway placed in the hands of a receiver is exceptional and represents the abandonment of all hope for the property. Continuous operation is essential from the standpoint of both the property and the public: a temporary abandonment of operations plays havoc equally with the railway property and with the business enterprises dependent upon it. Attempted abandonment by a private management, become hopeless, has often resulted in positive action by the courts to compel continuous service in behalf of the public, though only when no promise, immediate or ultimate, exists for the property, will stock-

holders approve dismantling, as the scrap value of a railway property is seldom more than a fraction of its worth as an operating unit. Barring the existence of exceptional conditions, therefore, the function of the receiver in charge of a railway property is that of continuing operation pending its future disposition. And it may properly be added that this receiver invariably faces a difficult problem. The carrier placed in his hands has made every effort to avoid receivership and, in consequence, comes to him with the property badly depreciated, perhaps burdened with onerous leases and contracts, and possessing no credit standing whatever in the financial markets.

TERMINATION OF THE RECEIVERSHIP

As previously suggested, the receiver continues to operate the property pending a final settlement. This final settlement may be made upon any one of three bases. In the first place, it may be that the property will so recuperate under the protection of the court that it can be returned to its original owners without readjustments. This recuperation may result from the development of the territory served and the consequent increase of traffic; it may result from improved financial conditions, both internal and external; or it may bespeak improved management while under the supervision of the court. Whatever the cause may be, however, the part played by the court and the responsibilities borne by it are relatively slight.

Final settlement has more often come—and particularly during earlier years—through a foreclosure sale at the order of the court. When creditors of one rank or another are unwilling to await rehabilitation or find it impossible to work out a plan of reorganization which is acceptable to all interests, the only recourse which the court has is to provide for the disposition of the property and the settlement of claims against it out of the proceeds. In the case of sale it is a usual occurrence for some interested group, perhaps

the holders of certain junior liens, to "bid in" the property and to assume the underlying issues of bonds, whose holders are not pressing for immediate settlement. In such a situation the power of the court and its responsibility is as great as it was small in the case previously discussed: upon it rests the burden of determining whether the sale shall be made and, if ordered, the conditions which shall govern. In the latter connection it must, in behalf of the creditors, fix a minimum price at which the property may be transferred, and prescribe the terms under which purchase may be made—a heavy and unusual obligation indeed for an agency created for the interpretation of laws.

Reorganization represents a third solution of the problem offered by receivership. Reorganization has been variously defined but, in the case of a railway in the hands of a receiver, it involves fundamentally such steps as will reduce the burden of fixed charges and, in addition, raise sufficient capital to enable the road to operate efficiently. As suggested by this statement, difficulties of no mean proportions are faced in its accomplishment. To avoid foreclosure it is necessary to work out a financial plan which gives adequate protection to the holders of senior bond issues, shows due regard for the possessors of various junior liens, and recognizes the rights, if such they might be termed, of the stockholders. In addition to devising a satisfactory financial plan, it is essential that the property be relieved of hampering restrictions, that it be supplied with sufficient funds to put it in sound operating condition and that adequate working capital be obtained. In the adjustment indicated above, the holders of senior liens generally occupy an impregnable position and are, in consequence, able to dictate in considerable measure the terms of settlement, but the holders of other liens usually find it necessary to make a sacrifice. This sacrifice normally takes the form of an increased face value of securities held, with higher contingent charges but lower fixed charges. The stockholder it is who must make the greatest sacrifice and his continuance as a participant in the

enterprise is generally contingent upon the contribution of funds essential to the rehabilitation of the property. However, the cash needs of the property may be met in part by demands upon certain junior lien holders and, in cases where the property promises well, through the sale of securities to the public. Through demands upon insiders, through sale to outsiders, or by both means, the needed funds are raised for the business. Here, again, the court functions in an important way: the equity of the terms of the reorganization must be examined by it with a view to protecting both public and legitimate private interests. Should the plan proposed seem to run contrary to either, the court must assume the responsibility of demanding such modification as will, in its judgment, properly protect all groups concerned.

JUDICIAL FUNCTION PENDING FINAL SETTLEMENT

Pending the termination of the receivership, the court exercises through its agent three major powers. In the first place, it must provide funds to meet the immediate needs of the property and to this end there has developed the receiver's certificate. Because of the importance both of continuing operation and of making minor improvements which will be quickly and conspicuously reflected in efficiency, all interests involved have come to recognize the prior claim of these certificates over all other obligations. Although issued in the beginning only to such extent as was necessary to meet current obligations, their employment has been extended gradually to the raising of funds for even capital expenditures of a modest character. In general, this power has been exercised judiciously by the courts though a few instances may be found of abuse, with consequent failure by the property to meet even these obligations in full. A second power exercised by the courts, and one which has been of considerable importance in certain reorganizations, is that of canceling any burdensome leases

and contracts. Numerous instances of action of this character might be given, but perhaps none are more significant than the severing of the Wisconsin Central from the Northern Pacific, the "Frisco" from the Santa Fe, the Wabash from its Pittsburgh connections and, more recently, the "Frisco" from the Chicago and Eastern Illinois. The third function of the court appears in connection with the operation of the property, the court here acting through its representative in the capacity of proprietor of the property which is subject to its direction.

CAUSES AND EXTENT OF RECEIVERSHIPS

Although not directly in point when discussing the scope of judicial control, it may be of interest to the reader to have presented certain facts with respect to the causes and extent of railway receiverships. The three conspicuous causes for the collapse of railway properties have been overbuilding—construction beyond the capacity of the territory served to give economic support; overcapitalization—the excessive issuance of obligations bearing fixed charges, or of obligations bearing dangerously high rates of interest, contributing particularly; and unwise or fraudulent management. Although conditions differed during the earlier periods of railway development, it may be said with confidence that a major part of the mileage in receivership during the past quarter of a century has found its way there because of construction beyond the needs of territories served, and as illustrative may well be cited a large portion of the mileage lying in Southwestern territory. Overcapitalization has also been of importance, the Wabash and certain other Gould properties, as well as the Erie, illustrating this point. Financial mismanagement has accounted for far fewer receiverships than its importance in the public mind would indicate, yet there has been within recent years, as shown by the collapse of the New Haven, the Rock Island, and the "Frisco," a sufficient amount of fraud and unwise

management to keep alive and active a suspicion of the integrity of all railway investments.

The total mileage in the hands of receivers has varied widely from period to period, corresponding in large measure to commercial and industrial conditions governing at a particular time. In so far as records show, the greatest mileage in the hands of receivers at any one time in the United States was in 1894 when almost 41,000 miles, little less than 25% of the mileage of the country, were so situated. The second highest point was reached June 30, 1916, with 37,350 miles, a figure which represented less than 15% of the total then operated. The minimum figure, on the other hand, seems to be that of 1902 when less than 1,500 miles were in the hands of the court, though in the previous year receivership mileage was only about 2,500. Sooner or later in their history, approximately half the railway properties of the United States have undergone a reorganization and more than 1,000 foreclosures have been made. The duration of a railway receivership averages from two to three years, though there are many instances of even important properties which have "wandered in the valley" for a considerable period of time: at the present time the Texas and Pacific has not emerged from a receivership instituted in October, 1916, and one small property, the Danville and Mt. Morris, operating but 15 miles of line, has been in the hands of a receiver since June, 1894, thus exceeding the record of 29 years made by the Central Vermont. At the present time the movement is in the direction of the reduction of receivership mileage—the total declined from 15,600 to 13,950 in the calendar year of 1923—and, barring unusual occurrences, that trend should be maintained until such mileage is reduced to small proportions.

WEAKNESS OF JUDICIAL CONTROL OF PROPERTIES

Despite the fact that the courts have, on the whole, discharged adequately their responsibilities under the present

plan of handling properties in receivership, certain important and some irremediable weaknesses have appeared. In the first place, the courts are ill prepared for the burden thrust upon them, and this is true not only from the standpoint of lack of training for the peculiar responsibilities of financial management, but also because of the heavy burden resting upon the courts in the performance of their usual work. This lack of expert knowledge of railway operation and of the fundamental principles of financial reorganization has shown itself in many cases, but perhaps in no connection more conspicuously than in the increase of capitalization so often resulting from the reorganization of a property. Then, too, at times when a great mileage must be directed by the courts, an almost impossible demand is made upon them in the face of heavy court dockets. A second criticism which may be made of the present policy of handling properties in financial difficulty rests upon the fact that it gives into the hands of the courts an unusual power and places at their disposal a patronage which is hardly consistent with the judicial function.

In the third place, the present plan has facilitated the establishment of "friendly" receiverships of an essentially fraudulent character and purposed to defeat, for the time being at least, the interests of the real creditors. That this has resulted from a willingness on the part of the courts to encourage unfair tactics, can be legitimately charged in but few instances; rather, it has developed out of judicial ignorance of the conflict of interests within the organization. A fourth criticism, and one closely connected with the one last made, rests upon the fact that all too often the court continues the old management in control, the president or some other high official being placed in charge of the property. If the receivership has been inescapable, the continuance of a management familiar with the problems of the property is to be commended, but if the failure is the consequence of inefficient or fraudulent direction, the retention of the old régime cannot be too strongly condemned. At times the

courts have sought to combine familiarity with the property and outside control by the appointment of two receivers, one from the old management and the other from the outside, yet this plan is weak in that the ignorance of the outside appointee makes him an easy dupe of tricksters, thoroughly familiar with the property. Finally, judicial control has resulted in conflicts of jurisdiction, the classic example being the Northern Pacific which had, in 1895, three separate sets of receivers in as many different groups of states. Even yet there is no definite rule to guide the courts in handling the affairs of an interstate carrier.

POSSIBLE SOLUTIONS

After all, in handling properties in financial straits the court is operating in a sphere which is not judicial; rather, it is technical and financial. Therefore, since the nature of the business is such that a railway receivership differs widely in problems and purposes from a receivership for a commercial enterprise, the solution of the problem would seem to be the transfer of receivership control from the general courts to some specially constituted court, to the Interstate Commerce Commission, or to some administrative body created for the purpose. In this way the courts would be relieved of a heavy burden during critical years and the evils of the present system would be largely avoided. In addition, more expert direction of the properties would be secured.

In the foregoing discussion, the ways in which the courts function independently in the railway field have been presented. It is not, however, by its independent action that the judiciary functions most importantly in the regulation of the carriers; instead, it is through the interpretation of legislation and the adjudication of Commission orders that its major work is done. But, since that cooperation of the judiciary with the other departments is set forth in later

chapters which deal with the development of positive regulation, it is needless to anticipate here. Therefore attention will be given at once to the development of positive regulation of the railways, state and federal.

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XXIX

STATE REGULATION

The charter as a basis of state action. Inadequacy of charter control. The early commission. Demand for more effective regulation. The advisory commission in Massachusetts and in other states. Causes underlying the demand for positive regulation. Nature of early regulation. Constitutionality of regulatory acts. Recession and later resurgence of the demand for positive control. The present commission: organization; scope of action; powers; procedure. Regulation by specific legislation. The gains of state regulation. Its weaknesses—remediable and inherent. Excellence of work done by certain states. Recent extensions of federal authority. Future of state regulation of railways.

JUDICIAL control of railways, unable to do more than say "thou shalt not," early proved incapable of adequately protecting public interest. That the first step toward positive control should be made by the state was natural. From the state the railway corporation had received its charter and within its confines often lay a considerable portion of the mileage of early properties. It was natural, too, as the railway net expanded beyond state boundaries, and as through traffic became more important than local, that control by the states should seek to follow, the more so since Congress has not acted to protect interstate movements. But just as natural as that the states should seek to protect the interests of their citizens by this extension of authority, was it inevitable that confusion should arise out of state efforts to control interstate traffic; from this confusion came, in 1885, the Wabash decision which denied the state all powers of control over commerce beyond its own boundaries.

Since that time the tendency has been increasingly in the direction of a further restriction of state action. Notable decisions by the Supreme Court have served to extend the scope of federal control at the expense of state; statutory

enactments, beginning with safety legislation and culminating in certain provisions of the Transportation Act of 1920, have tended to the same direction. Yet both judicial decisions and legislative enactments are merely the "straws" which show how the wind blows: as the years have passed, legislature and court alike have been compelled increasingly to recognize the essential unity of commerce. During the early years of railway development it may have been possible for a community, even a state, to live unto itself alone. But that day has long passed. The high degree of interdependence so characteristic of modern life has made dual regulation increasingly difficult. The causes and extent of this difficulty will be set forth more fully after a presentation of the development of regulation by the state.

THE CHARTER AS A BASIS OF STATE ACTION

State regulation of railways has been rested, at different times, upon two quite different grounds. During early years the state sought to exercise control upon the basis of charter provisions. This was later abandoned in favor of legislative control of a positive character. The more obvious and naturally, therefore, the first method of dealing positively with existing problems was through specific legislation. The unsatisfactory character of this policy led to the substitution therefor of general legislation, administered by specially constituted bodies. Charter control was historically first, therefore a brief discussion of this method will be first presented.

The early railway charters followed closely in form the charters of American turnpike and canal companies, also the charters given the English railways of that period, both of which date back to old English turnpike and canal grants. These early American railway charters were bestowed by special act of the legislature and varied widely in completeness. Among those granted in the eastern states there were many which were quite complete, but westward the compre-

hensiveness of these documents diminished with distance; in fact, in numerous instances charters given to important western railways were but fragmentary in character. Yet in many grants there appear definite efforts to safeguard public interest. The usual provision concerning rates was that the company might charge "such rates per mile as may be agreed upon and established from time to time by the directors of said corporation." Though in a few charters specific provision was made for later determination in public interest and, in more, maximum charges were fixed. Such limitation is illustrated by a Georgia charter which declared "that the charge of transportation or conveyance shall not exceed 25 cents per 100 pounds on heavy articles and 10 cents per cubic foot on articles of measurement for every 100 miles and 5 cents a mile for each passenger." Occasional charters provided for the publicity of rates and a few sought to deal with the problem of discrimination, though this difficulty was quite unforeseen by most legislatures. Although it was generally assumed that charter provisions would be self-executory or, if unsatisfactory, enforceable through ordinary legal channels, provision was made by several states for administrative control. Such control was of a restricted character, however, and generally vested in other than a specially constituted body.

Commonly no specific reservations of power were made by the legislature granting a charter, though in some documents interesting provisions appeared. Occasionally it was declared that, if the railway corporation earned a return in excess of a stipulated percentage, quite generally 10%, the legislature might act to reduce rates. Certain charters, particularly those granted by the New England states and by western states which followed their lead closely, reserved the power to purchase the railways after a specified number of years, varying from 15 to 50. In case of purchase the price was generally to equal the cost of the plant, plus interest at a named rate. Yet another reservation of power, more often the consequence of a provision in the state con-

stitution than of definite mention in the charter, was the right of the legislature to amend or modify the charter at will. As a measure of control some charters placed a definite limitation of from 10 to 99 years upon the life of the instrument, though most were approved, seemingly, with the expectation that they should be perpetual in character. Other miscellaneous provisions intended to safeguard public rights occasionally appeared: among these were the prohibitions of later charters upon the leasing or joint operation of competing lines, the requirement that a true annual report should be submitted to the stockholders, sometimes even to the legislature, and provisions relating to the safety of operation.

INADEQUACY OF CHARTER CONTROL

The inadequacy of charter provisions to protect public interest was the result of two facts. Few charters indeed dealt at all with such vital matters as the determination of rates, publicity, and discrimination, and where such provisions were found, adequate penalties for their enforcement were lacking. Yet charter provisions were quite unsatisfactory in themselves: when a definite limitation was placed upon rates, the figures named were invariably excessive, even from the standpoint of railway self-interest, based as those figures were upon stage-coach and wagon rates. And, where excess return entered, easy avoidance lay either through increasing the capitalization, over which no control was exercised, or concealing earnings by juggling the records, no provision for policing the accounts being included. That no real effort was made during early years to provide for effective control of the railways is explained largely by conditions previously described—an almost child-like confidence in the efficacy of competition and a need for additional mileage which was greater than the desire to control existing properties. This governmental policy of non-interference controlled for 40 years.

THE EARLY COMMISSION

In this initial period of railway development, nevertheless, commission control had its beginning. In 1832 a Connecticut charter named three "commissioners" who, not interested in any way in the company, were responsible for the discharge of the trust imposed upon them. In 1836 Rhode Island made provision for the first public body, giving to that commission the power, "upon complaint or otherwise, whenever a majority of them shall deem it expedient, personally to examine into any or all of the transactions or proceedings of any railroad corporation that now is, or hereafter may be, authorized and established in this state, in order to secure to all the citizens and inhabitants of the same the full and equal privileges of the transportation of passengers and property at all times that may be granted, either directly or indirectly, by any such corporation to the citizens of any other state or states." Power was also given to inquire into all agreements between railway companies and steamship companies purposed to give preference to either. New Hampshire in 1845 provided for the appointment of an official who should collect information concerning the railways and study the problem of the relations between railways and the state. Within another decade Connecticut, Vermont, and New York had created bodies of inquiry and in 1858 Maine established a railroad commission. The functions of these early commissions, though not positive in character, were numerous. Upon them rested generally the obligation of appraising private property taken for railway use, apportioning receipts and expenses of interstate carriers among the states traversed, enforcing safety legislation, and collecting financial and traffic data.

THE DEMAND FOR MORE EFFECTIVE REGULATION

During the second period in the development of the American railway net conditions so changed that an insistent

demand was made for more effective railway regulation than could be secured under existing policies. Rapid expansion had brought in its wake financial scandals and cutthroat competition. This competition in turn brought personal and place discrimination and, added to this, because of the post-war readjustment and the depression of the seventies, "times were badly out of joint" in the agricultural portions of the country. In consequence, the demand for increased public control over the railways was voiced throughout the entire nation and in many states action was taken. This demand for control precipitated a bitter struggle, particularly where control of a positive nature was attempted. The battle, first fought out at the polls, was transferred to legislative halls, and from there to the impartial atmosphere of the highest courts, state and federal. Only after the Supreme Court in the Granger cases, a group of which *Munn* v. *Illinois* was the outstanding, had confirmed the right of the public to interfere, did the railways bow to public will. Yet, while bowing to that will, they interested themselves at once in guiding and shaping it.

THE ADVISORY COMMISSION

The demand for greater control resulted in the development of two quite different methods of supervision, the one advisory in character, the other mandatory. Advisory control was exercised without exception through a public body or commission composed of one of more men, mandatory action in two quite different ways. The advisory commission, as an instrument of control, appeared first in Massachusetts and there perhaps gained its greatest success. This commission, composed of three men, each serving for three years, was appointed by the governor with the consent of the Council and its cost was met by the railways. The powers and duties of this body were: first, to examine railway corporations and determine if they were complying with all charter and statutory requirements; sec-

ond, to advise the railways concerning "the security and accommodation of the public"; third, to investigate the railways upon complaint or upon its own motion and to summon witnesses and compel testimony under oath from them; fourth, to prescribe a uniform system of railway accounts and inspect the records of such corporations; fifth, to serve as a board of arbitration in the settlement of disputes between railways and the public; and sixth, to submit an annual report to the legislature setting forth "the actual working of the system of railroad transportation in its bearing upon the business and prosperity of the commonwealth," and suggest such legislation as seemed needful for the adequate protection of public interest.

From this statement it is evident that the Massachusetts Commission had no power to enforce judgments: it was compelled to rely upon public opinion and upon such reenforcement as it might receive from the legislative body to accomplish its will. Nevertheless, the commission was strikingly successful. Ringwalt, writing in the middle eighties, comments upon its work and the reason for its success thus: "Massachusetts has been fortunate in securing as commissioners men who commanded the confidence of the community and the respect of both the railroads and those who made complaints against them. The character of the men, their sincere purpose to promote the interests of all concerned and the well organized and established conditions existing in Massachusetts have afforded a much greater measure of success for the Massachusetts law and commission than has been attained by efforts elsewhere." [1] Another writer, in discussing the success of the Massachusetts law, says, "The commissioners handled the complaints presented to them in a masterly manner, publishing a full statement of their decisions, which, under the harmonious relations existing between carriers and shippers, were, as a rule, readily accepted. The Act giving the Massachusetts Com-

[1] Ringwalt, J. L., *Development of Transportation Systems in the U. S.*, pp. 266-267.

mission power over corporation accounts was passed with the active assent of many of the railroads and the system of investigation and reports was by this step brought to its ultimate point of development under a state government." [1] So successful was the advisory commission in Massachusetts that mandatory powers were not given it until 1913.

Within a relatively few years the advisory commission was accepted by a number of other states. It enjoyed initial adoption in many of the northeastern commonwealths and later found a restricted place in the West, where certain states abandoned positive regulation because of its unsatisfactory results and the widespread financial failure of the railways, following 1873. In the middle eighties all the New England states, New York, Ohio, Michigan, Wisconsin, Minnesota, Iowa, and Virginia exercised little more than supervisory control over the carriers.

Strikingly successful in certain states, advisory control failed completely in others. The Massachusetts Commission "worked out its idea in a conservative community whose habits of life and ways of thinking were established. The period of rapid railroad building, with all its attendant evils, had passed, and the Board was set down in a state well supplied with railroad facilities and fairly well satisfied with the manner in which the transportation business was being conducted." [2] The properties were locally owned and managed and competition was well under control. In other states, notably west and south, the opposite was in every case true. Local traffic was of minor importance, competition was exceedingly active, the communities served were in sore financial straits, and the seemingly prosperous railways were owned and managed by eastern or foreign capital. In commenting upon the work of the advisory commission in Iowa, Dixon says, "The Board was very successful in settling questions of minor importance. . . . In some notable instances the Board was re-

[1] Dixon, F. H., *State Railroad Control*, p. 202.

[2] *Idem.*

markably successful in questions of great importance. But it failed just where control was most needed. It was powerless to check that crying evil of railroad transportation, discrimination." [1] Yet, even where the advisory commission signally failed, gains were made. A better understanding between the railways and the shippers was promoted and the public was assisted in gaining a better knowledge of the railway business; something was done to remove the spirit of distrust and hostility so characteristic of the movement toward regulation at its height. Nevertheless, the general failure of the advisory commission is clearly shown by the rise of mandatory control.

APPEARANCE OF POSITIVE REGULATION

Positive regulation of the railways made its appearance in the Middle West, and the statutes which embodied the demands of that western population became widely known as the Granger laws because of the strong support which the local Granges throughout the West gave to the movement. Prior to the latter sixties the West had given enthusiastic and indiscriminate support to all railway projects. Before 1870, however, the attitude of the public toward the railways had changed: bitter hostility took the place of enthusiastic support. This hostility is explained by various facts. Many had been the victims of fraudulent practices. Ringwalt quotes a Wisconsin farmer who made the following statement to an eastern newspaper correspondent:

"Do you know how these roads have, most of them, been built? In the first place, they got land grants that in some counties are worth almost as much as the roads cost. Then they sent agents to the counties through which the road was to be built, who induced them to vote bonds to the companies and take stock; in some instances they provided them a first mortgage on the road when it should be completed. Then they got bonds from cities, and, in some cases, even from townships. Of course the interest on these all has to be raised by taxing us farmers. But that is

[1] Dixon, F. H., *State Railroad Control*, p. 131

not all. Their agents went through the country, and wherever they found a farmer who had a few hundred dollars laid by, they persuaded him to buy the stock of the road, and pay cash for it. Their argument was a very plausible one; they told us that we were paying from 25 cents to 50 cents a bushel to get our wheat hauled to Milwaukee, and that when the road was completed they would carry it for from 5 cents to 10 cents. The difference would be added to the value of every bushel of wheat that we raised. Then the road would belong to the farmers, and, of course, we were all going to get rich. I took $2,000 of stock in this (Chicago and North Western) road and paid cash for it. But a great many farmers had no money to spare, and they were induced to give the railroads mortgages on their farms. They were assured that before the time came to pay their mortgages the road would be built and the value of their crops would be enough increased to enable them to pay up, and at any rate their farms would be enough enhanced in value to more than make up for the mortgage. In some cases the farmers took stock for these mortgages, and in some the promise of a first mortgage on the road as soon as it should be built.

"Well, now, how do you suppose they treated us? They didn't give the farmers the mortgage on the road that they promised, but when they gave them anything it was a second mortgage on long time. The first was a short one given to capitalists. That was, of course, foreclosed, the road sold out, and the value of the stock and bonds held by counties, towns, and individual farmers destroyed. I could find you stacks of certificates and bonds for which our farmers paid cash or mortgaged their places, and which are now not worth as much as the blank paper on which they are printed. Thousands of farmers were absolutely ruined."

There may be exaggeration in this statement, but something like the events described probably occurred in connection with a considerable number of the land-grant or other roads of the Granger states, and it is obvious that such occurrences would have the effect of stimulating adverse legislation, without regard to its justice or the rights of non-resident owners or creditors of railway property.[1]

Another fact which accounted for much of the public hostility toward the railways was the existence of serious abuses. As a result of competition, discrimination had ap-

[1] Ringwalt, J. L., *Development of Transportation Systems in the United States*, pp. 230-231.

peared: "The agriculturists of the Northwest, however, had reason to complain not only of high rates but even more of discriminating rates. Certain places, particularly competitive points, were favored, this being necessary to secure any business at all; while other places were charged with high rates that should compensate the roads for their sacrifices at competitive points. Certain shippers were favored at the expense of others. The roads had it within their power to make and unmake cities, to destroy the business of individuals, or to force their removal to favored points." [1] The public was deeply aroused by these conditions, the more so because of absentee ownership and the added fact that the communities against which discriminations were most marked were often those which had contributed most generously to the construction of the line. The arrogance of railway management in dealing with an inflamed public and the seeming prosperity of the carriers in the face of severe local depression, further aggravated the situation. Then, too, the railways had early discovered that an active interest in political affairs was to their advantage and, with the first suggestion of public regulation, came an extension of those political activities to a point which brought down upon them still greater wrath. Public control of the railways, under such conditions, was inescapable. Western conditions, in themselves, did not promise well for advisory control but, quite beyond this, the impatience and active hostility of the public made an impossible background for any but mandatory action.

NATURE OF EARLY REGULATION

Mandatory action first took the form of prescriptive legislation. Illinois in 1871 enacted a law which prescribed maximum rates and fares and prohibited discrimination. Wisconsin in 1874 placed the Potter law upon the statute books, this statute likewise fixing maximum charges. In

[1] Dixon, F. H., *State Railroad Control*, p. 24.

the same year, after a bitter political campaign, Iowa passed the Maximum Rate law which accomplished the equalization of rates and the elimination of unreasonable discrimination. This last-named statute is of particular interest because of its classification of railways upon the basis of gross earnings per mile of line and the restriction of those properties with higher gross earnings to a lower level of charges. Passed, as these and other positive statutory regulations were, in the heat of battle, their results were not particularly satisfactory, the more so in the face of bitter carrier opposition and the financial collapse or near-disaster of most western railways. In consequence, these laws were soon modified or repealed: Illinois in 1873 transferred rate-making powers to its commission, Wisconsin repealed the Potter law in 1876, and in 1878 Iowa abandoned mandatory control, establishing instead an advisory commission in the hope of obtaining more satisfactory results.

Brief and limited experience with prescriptive legislation showed the weakness of that method of dealing with the railways as compared with commission control. It is impossible to provide reasonably for different conditions which exist within even a single state by statutory enactment and, furthermore, it is impossible thus to secure the high degree of flexibility from time to time which is essential to highest public interest. These and other advantages of commission control led Illinois to create, and to transfer broad powers to, its Railroad and Warehouse Commission in 1873 and this example was followed during the next decade by a number of other states. Georgia in 1879, upon the basis of a constitutional provision, created a commission which exercised broad powers, and California in 1880, upon the basis of a similar provision, organized a commission which regulated railways in minute detail. These "strong" commissions not only exercised almost all powers of investigation possessed by the advisory bodies but had power as well to prescribe charges and compel obedience thereto. Adequate powers were also given to control discrimination.

VALIDITY OF REGULATORY ACTS

The attitude of the railways toward such unwonted and detailed control may well be imagined and, once the battle was lost in the legislatures, immediate resort was taken to the courts. Regulatory acts which imposed serious limitations and acts which transferred to administrative bodies broad powers were attacked, in general, upon three grounds. First, it was urged that the railway business was private in nature. Throughout almost a half-century of development its public obligation had not been emphasized and, in consequence, management was loath to accept the principle that the enterprise was henceforth to be regarded as "burdened with the public interest." Second, it was contended that the typical charter provision, bestowing upon directors and officers the right to collect such rates and fares as they, in their judgment, saw fit, debarred the legislature from regulating charges: the interpretation of the charter as set forth in the Dartmouth College case was urged as guaranteeing protection against public interference. Finally, many of these early laws were contested upon the ground that their provisions were repugnant to the Federal Constitution: it was asserted that they amounted to a regulation of interstate commerce, which power had been expressly delegated to Congress.

These major propositions and others of lesser importance were urged upon the lower courts and upon the United States Supreme Court with great force in the Granger cases, but, despite the appeal which the carriers made to constitution, statute, and charter, the final decision was adverse to them upon every point. After giving its approval to the common law principle that "when private property is devoted to public use, it is subject to public regulation" and declaring that "a power of government which actually exists is not lost by non-user," the United States Supreme Court accepted without question the principle that carrier property is burdened with a public interest and therefore sub-

ject to governmental control.[1] That general charter provisions recognizing the right of the corporation to fix a scale of charges for services rendered by it did not constitute an exemption from public control, was also upheld by the courts. "It was within the power of the company to call upon the legislature to fix permanently this limit and make it a part of the charter; and, if it was refused, to abstain from building the road and establishing the contemplated business. If that had been done the charter might have presented a contract against future legislative interference. But it was not; and the company invested its capital relying upon the good faith of the people and the wisdom and impartiality of legislators for protection against wrong under the form of legislative regulation."[2] And again, the court quotes with approval, "The privilege, then, of charging whatever rates it may deem proper is a franchise which may be taken away under the reserve power[3] but the right to charge a reasonable compensation would remain as a right under the general law governing natural persons and not as a special franchise or privilege."[4]

In answer to the contention that state regulation represented an infringement upon federal rights the court declared, in the Munn case, while speaking of grain elevators, "Incidentally they may become connected with interstate commerce but not necessarily so. Their regulation is a thing of domestic concern and certainly until Congress acts in reference to their interstate relations, the state may exercise all the powers of government over them, even though in so doing it may indirectly operate upon commerce outside its new jurisdiction."[5] And again, in the Cutts case which dealt with the regulation of railways, it said, "This

[1] *Munn* v. *Illinois*, 94 U. S. 113.

[2] *Chicago, Burlington and Quincy Railroad Company* v. *Cutts*, 94 U. S. 155.

[3] This charter was secured from Wisconsin, the constitution of which allows amendment at will.

[4] *Piek* v. *Chicago and North Western Railway Company*, 94 U. S. 164.

[5] *Munn* v. *Illinois*, 94 U. S. 113.

road, like the warehouse in that case (Munn), is situated within the limits of a single state, its business is carried on there and its regulation is a matter of domestic concern. It is employed in state as well as in interstate commerce and, until Congress acts, the state must be permitted to adopt such rules and regulation as may be necessary for the promotion of the general welfare of the people within its own jurisdiction, even though in so doing those without may be indirectly affected."[1] In the Piek case, as has been stated previously, the Supreme Court went still further and approved state regulation of interstate commerce until such time as Congress had acted. At every point, then, the public scored a sweeping legal victory over the railways.

RECESSION OF MOVEMENT TOWARD POSITIVE CONTROL

This legal victory was far more sweeping, however, than the economic success of railway regulation by statute and commission during this period. Even before the Supreme Court had handed down its decisions in the Granger cases early in 1877, many of the states which had sought to impose restrictions upon the carriers either repealed such positive legislation or so modified it as to minimize carrier complaint. The causes for this reversal in policy were several. Railway supporters urged strongly the partial responsibility of such control for the sorry financial plight of the carriers following the panic of 1873. In many jurisdictions mandatory action had failed to secure the desired results, either because of carrier opposition or inadequate enforcement. Then, too, the seeming success of certain of the advisory commissions, notably that of Massachusetts, served as a further reason for change. This method of dealing with the carriers was not only urged by many upon impartial grounds but was also supported enthusiastically by the carriers. And here appears a final reason for a change in policy by

[2] *Chicago, Burlington and Quincy Railway Company* v. *Cutts*, 94 U. S. 155.

many states: the railways had accepted the challenge of regulation. They set about with consummate skill molding public opinion and reached out for control of the legislative and executive departments of government, even of the judiciary. Regulation, or the fear of it, drew the railways into politics and in that field they played an active and not particularly savory part from 1870 onward for almost 40 years. Among the states which modified or repealed their positive regulatory acts during this period were Minnesota in 1875, Wisconsin in 1876, Iowa in 1878, and Tennessee, South Carolina, and Kentucky somewhat later. Illinois alone, among the Granger states, held fast.

RENEWED DEMAND FOR POSITIVE REGULATION

Yet, at the time many states were withdrawing from the field of positive regulation, there were causes operating which were to result later in the general adoption by the states of positive regulatory measures. After the panic of 1873 and the subsequent depression had passed, the railways again established themselves upon a sound financial footing; in this they were aided by the rapid development of the country in the score of years following 1873. During these years many abuses which had contributed to the Granger movement reappeared in exaggerated form. Personal discrimination became so widespread as to constitute serious threat to all but the favored few; place discrimination also resulted in general and emphatic protest. During these years, too, the political activities of the carriers had so broadened that it was commonly recognized that "such and such" a railroad carried a particular state, even states, "in its vest pocket." Furthermore, during these years there was a mounting wave of hostility toward corporate enterprise, monopoly being the particular *"bête noire"* of the public. Hostility to the railways in particular was increased greatly by two developments: the widespread negotiation during the seventies and eighties of rate agree-

ments which were necessary if the financial structure of the carriers was not to be wrecked by cut-throat competition, and the general movement toward railway consolidation.

These factors of a general nature, together with others of local importance, resulted in a second wave of mandatory control. This control took two forms: commissions were created or increased powers were given to bodies already existing, and a sharp increase in the extent of direct legislative interference with railway business may be noted. In 1885 Minnesota again resorted to positive measures and in 1888 Iowa abandoned a policy of advisory in favor of mandatory control. In 1891 the Texas Commission was organized with wide powers and prior to the panic of 1893 other states took positive action. For several years after 1893 there was no further movement in this direction, but, beginning in the latter nineties, the railways were subjected to a veritable avalanche of regulatory acts. By 1902 almost a third of the states had commissions which exercised broad and fundamental powers and a decade later only a mere handful of states did not exert positive control over the carriers. Positive regulation by the Federal Government had also reached a point of high development by 1912. The railway has unwillingly but inevitably been subjected to the public will in all important matters.

THE TYPICAL STATE COMMISSION

The present state railway commission is, then, mandatory in type, and such a body now exists in every commonwealth but one, Delaware. New York has two commissions—the function of one being exclusively the control of traction lines within New York City—and Montana has a single body which functions with respect to the railways as a Board of Railroad Commissioners and with respect to other public utilities as a Public Service Commission. These state bodies are designated by widely varying names. Of the forty-nine which exist, thirteen are known as Public Service Commis-

sions, nine as Public Utilities Commissions, nine as Railroad Commissions, five as Corporation Commissions, four as Boards of Railroad Commissioners, and two as Departments of Public Utilities. In addition to these there is one Department of Public Works, one Railway Commission, one Railroad and Warehouse Commission, one Railroad and Public Utilities Commission, one Transit Commission, one Commerce Commission, and one Board of Public Utility Commissioners. These names are not, however, always indicative of the jurisdiction of the respectively designated bodies.[1]

Three commissioners compose the governing body in thirty-seven states, five commissioners in seven states, and seven in three states. In two states jurisdiction is vested in the head of the Department. In twenty-four states the commissioners are appointed by the governor, in twelve states they are elected from the state at large, and in five they are elected by utility districts or other divisions. In Oregon two commissioners are elected by districts and one from the state at large, while in two other states, Connecticut and South Carolina, the commissioners are elected by the General Assembly. In Nevada the State Engineer serves upon the Board ex officio, the other two members being appointed by the Public Service Board. In twenty-six states the commissioners serve for six-year terms, in nine states for four-year terms. In two states, New York and Pennsylvania, the term is ten years, and in two others, Michigan and Massachusetts, five years. The members of the Public Utilities Commission of Maine serve for seven years. In every state provision is made for rotation of appointment or election, the purpose being to minimize the number of changes in a particular year or biennial period. Salaries paid to the men with whom the control of public utilities rests, vary widely—from a maximum of $10,000 per annum

[1] Much of the material in this and several succeeding paragraphs is based upon *A Comparative Survey of Railroad and Public Utility Laws*, the report of a special committee on Uniform Regulatory Legislation made in 1923 to the National Association of Railway and Utilities Commissioners. Hon. L. E. Gettle, Wisconsin Railroad Commission, Madison, Wis., chairman.

in such states as New York and Illinois to a minimum of $2,500 in certain others. The usual compensation, however, is from $4,000 to $5,000.

Membership upon the state commissions is generally hedged about with certain restrictions. The provision is a common one that no commissioner shall have a pecuniary interest in any public utility subject to the jurisdiction of the body upon which he serves. Many states go even farther, prohibiting such interest in any public utility of the kind regulated by the commission, wherever situated. Almost half the states require that a commissioner shall be a resident and elector of that particular state and some lay down a minimum age requirement. A certain few of the states demand specific attainment or knowledge of members of the commission: in Wisconsin one member must have a general knowledge of railroad law and another a general understanding of railroad transportation; in Georgia one must be familiar with railway operation and one experienced in law, while in Kansas one member must be an experienced business man and another experienced in the railway or other public utility field. In a few states the membership must represent more than one political party and in others participation in party activities is prohibited. It is interesting to note that eight states meet all cost of regulation by the assessment of supervision and regulation fees against the utilities subject to various acts, gross receipts and property valuation being the usual bases of distribution.

SCOPE OF AUTHORITY

The scope of regulatory activity of these many bodies is strikingly similar in some respects and widely at variance in others. Steam and interurban railways and express companies are regulated in every jurisdiction. Telegraph lines are subject to control in all except five states, and telephone lines in all but three. With respect to what might more properly be termed municipal utilities, the control of which

has been placed in the hands of regulatory commissions increasingly since 1900, a wider variation exists. Although street railways are subject to control in all but four states, electric companies are exempt in ten, water companies free of control in fourteen, and gas companies in eight. Heating companies, other than those furnishing gas or electricity, are regulated in but nineteen jurisdictions. An interesting difference in the scope of regulatory activity appears in the case of municipally owned or operated utilities: only nine state bodies regulate all municipal utilities and the statutes of sixteen states except from all effective control by the state commission these municipal enterprises. In other states certain utilities are subject to regulation, as in Maryland where gas and electric companies may be regulated. In Maryland also the commission may, upon the application of a county or municipality, fix or modify the rates charged for water by another municipality beyond its boundaries and within those of the applicant.

RANGE OF POWERS

The range of powers exercised by the various commissions is wide. The laws bestowing such powers are largely adaptations of the enactments of Wisconsin, covering the regulation of railways in 1905 and of other public utilities in 1907, and of New York, both of which represent, in turn, an adaptation of the provisions of the Interstate Commerce Act. That an appreciation of the wide range of state regulation may be gained, a brief statement of the various powers exercised will be made. In all jurisdictions regulative bodies possess wide powers over the establishment and alteration of rates. The power to prescribe systems of accounts is also widely enjoyed by commissions. Control over matters of service and also over certain matters of safety of operation and construction lie with various of the commissions. Many commissions have had the power to regulate the issuance of securities by carriers subject to their control; others

the right to issue or withhold, upon the basis of the facts presented, certificates of convenience and necessity incident to the construction or abandonment of properties in whole or in part. In some states the commission has been given power to supervise intercorporate relations and may, in public interest, approve or deny consolidations, intercorporate holdings of securities, or utility agreements. Many miscellaneous powers have also been extended, such as the right to enter premises for purposes of inspection, to order reparation and refunds, to issue orders concerning loss and damage claims, and to act as mediator or arbitrator in case of disputes between a utility and employees.

General rules of procedure in actions before the commission are laid down, these rules covering evidence, the maintenance of records, the enforcement of orders, and rehearing. Efforts have been made, too, by the legislatures to define the manner and nature of the judicial review of commission orders. Such orders may be attacked in 15 states by direct action brought in the courts to set aside the decree in question. In some states review may be had upon a writ of certiorari or review, while in others direct appeal may be taken. Such actions may be handled by the courts *de novo* or upon the examination of the record without new evidence, but in practically every instance the rule governs that the orders of the commission, covering matters within its jurisdiction, are, *prima facie,* lawful and valid. The burden of proving them otherwise thus falls upon the party by whom appeal or adverse action is taken. Commission laws also make provision for the enforcement of orders through criminal or civil action and validate the use of the injunction to assist in adequately safeguarding public interest.

REGULATION UNDER SPECIFIC LEGISLATION

In addition to commission control, the railways have been subjected to numerous legislative enactments. Freight rates during recent years have rarely been set by law, though

three states expressly deny the right to their commissions to establish such rates in excess of the maximum fixed by statute—Alabama, Iowa, and North Carolina. Passenger rates, on the other hand, have been widely fixed by statutory enactment; in the decade closing with 1910 the railways were subjected to a veritable epidemic of Two-Cent-Fare laws. Legislative restrictions have also been placed upon cooperation and consolidation: rate agreements and pools have been widely prohibited and the consolidation of competitive properties forbidden. Laws have been enacted to eliminate personal discrimination in the form of rebates, also that form of discrimination which was the consequence of the widespread use of the pass. Detailed requirements have been embodied in statutes by many states with respect to increases in capitalization, too, particularly with reference to the purpose for which such securities may issue, accounting for the expenditure of the proceeds therefrom, and the total par value of securities which may be issued upon the consolidation of two or more regulated companies.

Questions relating to operation and management have likewise received generous attention from the state legislatures. These acts deal, among other things, with car service and demurrage, the establishment of terminal facilities, train service, preference in the movement of traffic, and the elimination of grade crossings. Other matters which have interested legislators have been the average daily movement of loaded equipment, the type of headlights and safety appliances to be employed, the speed and length of trains, and the number of men who should constitute a full crew. In speaking before a Congressional committee in 1917, Mr. Kruttschnitt declared that in 1911 new railroad laws totaled 276, in 1912, 48, and that between 1912 and 1915 more than 4,000 bills affecting the railways were introduced into Congress and the several state legislatures, of which 440 became laws. In consequence of the numerous requirements made of the carriers, the number of reports of all kinds filed by them in the year closing June 30, 1915, was

2,991,776, at an undoubted cost of millions of dollars. And, unfortunately, the passage of years witnessed little or no diminution in the efforts of legislators to regulate railway enterprise: each year and biennium brings its new crop of offerings. It is not strange that the railways believe themselves to be living under a "rain of law"; indeed, it might well be termed a deluge!

THE GAINS OF STATE REGULATION

The wide differences in state regulations and the equally wide differences in results obtained under them, due to great variations in administrative application and judicial interpretation, make it impossible to give here a specific statement of the workings of state regulation. Entire volumes might and, in fact, have been written upon the work of the older and more successful administrative bodies. An evaluation of state regulation as a whole is quite possible, however, and of peculiar present value because of the critical examination which is now being made by the thoughtful public of our entire regulatory policy.

State regulation has resulted in certain distinct gains, some of primary importance to the public, some to the railway, and some of equal value to both. A lower level of rates has obtained for many years past, both passenger and freight, because of state action, and state action has likewise eliminated much discrimination: the pass evil has been abolished, rebates have been reduced to a minimum, and place discrimination within the states largely eliminated. Accounting practices have been improved and unnecessary construction has been prevented. Compulsion has given improved service and better facilities in many instances, and capitalization practices have been controlled in public interest by a few states. In other cases state action has proved a barrier to railway consolidations which were contrary to public interest. Besides these specific gains, certain advantages of a general character accrued. State regu-

lation gave a background of experience and a prestige of success which made it easier to secure action by Congress. Then, too, and more important, the state has been a laboratory in which the soundness of various regulatory policies has been tested. As a result of this careful winnowing the Federal Government has been able to avail itself of tried policies, thus avoiding experimentation on a large scale that might well have proved disastrous. In short, state regulation has served a helpful purpose and its gains have been important.

REMEDIABLE WEAKNESSES OF STATE CONTROL

Yet certain weaknesses are evident in state regulation, weaknesses of such importance that, so far as the control of railways is concerned, the state commission stands on trial. Too often the commission itself is so organized as to reduce the effectiveness of regulation; members serve for but a short term in many states and salaries are frequently insufficient to attract men of talent. The selection of commissioners by election has manned many bodies with splendid campaigners but poor public servants, and the use of the office of commissioner as a reward to political henchmen has often given little better results through appointment. Other men have used commission membership as a political opportunity.[1]

Another weakness of state regulation appears in excessive activity along certain lines and inadequate action along others. Undue attention has been devoted to maximum rates and to questions which might properly remain with

[1] Only within recent months did a newspaper, which was urging the chairman of a certain commission for the governorship of that particular state, solemnly suggest that this prospective candidate might find it necessary to immolate his political ambitions upon the altar of public service: if unable to bring to a conclusion an important case before the Interstate Commerce Commission in which a reduction in rates upon farm products is sought, he stands ready to sacrifice political advancement in the interests of his *agricultural* constituency! But it is a safe presumption that his obligations as commissioner will not seriously interfere with his political ambitions.

management, while other matters of fundamental importance such as capitalization, minimum rates, labor disputes, and control over construction and abandonment have been too generally ignored. What boots it if Massachusetts has adequate legislation controlling the issuance of securities, when Connecticut, imposing no restrictions, permits the New York, New Haven and Hartford to indulge in that orgy of high finance which characterized the Mellen management of the property? A further complaint lies against the parsimonious attitude of state authorities with respect to rates. The whole tendency of state control has been to reduce charges and the extent to which that reduction has been carried in comparison with federal action is indicated by the fact that, to the best of the writer's knowledge, every case charging confiscation has arisen from a schedule of state-determined rates. This parsimoniousness has undoubtedly secured lower immediate charges, but the ultimate cost of such a policy to the public in a less effective service must always be heavy.

A fourth weakness of state regulation by commission lies in the partisan character of those bodies. One writer in commenting upon this situation says:

> The unfairness of the attitude of most state commissions is illustrated by the fact that seven of them actually appeared in the Five Per Cent Case as parties in opposition to the proposed advances of interstate freight rates in Eastern territory, and that sixteen of them appeared as parties in opposition to the advances in freight and passenger rates in Western territory sought at the same time.
>
> The attorney for these commissions, who was the chairman of one of them, appeared also as the attorney for two large shippers' organizations, the American Live Stock Association, and the Grain Dealers' Association; and part of the expenses incurred by him in preparing his testimony was borne by the large meat-packing concerns. It is tacitly assumed by the laws of their creation that railroad commissions, in passing on the reasonableness of rates, will act as impartial arbiters between the companies that charge the rates, and those that pay them. It is hardly to be assumed that state commissions will be impartial in

hearing and deciding state cases when they are regularly appearing in interstate rate cases, against the railways, as many of them do. These state commissions are led to take such a course largely by political considerations. From a political point of view it is advantageous to their members to struggle to get the lowest rates they can for their own states, regardless of the effect on the nation. . . .[1]

That this situation has not changed in recent years is evidenced by the frequent intervention of state commissions in cases before the Interstate Commerce Commission and it was further emphasized in the mind of the writer a short time ago when he witnessed an attack upon the level of certain interstate rates by several state bodies.[2] State regulatory bodies should not only be discouraged from appearing thus as prosecutor[3] but should be required at all times to preserve their semi-judicial position: such matters should be handled by the attorney-general or another in behalf of the state.

Complaint against state regulation has also been made because of the considerable number of ill-advised laws and orders to which the carriers are subjected. The cost of full-crew or, more properly, extra-crew laws to the railways in 1917 was estimated at $5,000,000 per year. And yet experience indicates that they accomplish little more than the employment of additional labor—except, perchance, that their application makes possible "a four-handed instead of a three-handed game in the caboose," as one train-service worker suggested. In some jurisdictions legislation has

[1] Dunn, S. O., *The Regulation of Railways,* pp. 80-81.

[2] This attack was directed by the chairman of the Kansas Public Utilities Commission, who had the assistance of other western commissions, and sought to secure a reduction in interstate grain rates. How natural that, even while this presumed impartial chairman was conducting a skilful attack upon the carriers, many of which operate within the state of Kansas, his state Supreme Court should hand down a decision written by a justice who was, at one time, attorney for the Kansas Commission, in which it was explicitly stated that "the commission comes into any investigation as a partisan and not as a judge. The law gives it authority to judge; it judges its own case." *Kansas City Star,* Nov. 11, 1923.

[3] Certain states mistakenly require the commission to intervene in such cases.

been passed fixing the maximum length of trains, thus superimposing upon the judgment of experienced operating officials the will of an uninformed body. One state, by demanding the use of electric headlights instead of acetylene, saddled a needless cost of $100,000 upon a single carrier, needless because the acetylene lights exceeded in brilliancy the standard imposed soon thereafter by the Interstate Commerce Commission. Nor are commission orders entirely beyond reproach in this matter: particularly has this been true of service orders and of orders requiring improved station facilities.

FUNDAMENTAL WEAKNESSES OF STATE REGULATION

Yet these weaknesses of and objections to state regulatory action are largely remediable, though considerable effort upon the part of the friends of state regulation and of those who possess a clear understanding of the railway problem would be necessary. But in addition to these, there are two other complaints against state regulation which seem to lie in the very nature of such control and to be, therefore, practically ineradicable. The first of these appears in the diversity of laws and commission orders among the various states and the dependence of carriers, doing business in several states, upon the rather doubtful unanimity of judgment among these different bodies for the successful execution of many plans. Some states assess a relatively light charge for failure to furnish equipment to shippers within a prescribed period, while others levy a heavier charge for a like failure. Can there be any doubt as to which state will receive equipment during a period of shortage? In 1917, 14 states had dissimilar safety appliance acts and 20 states regulated the hours of railway service, the maximum running from 10 to 16 hours a day. And even though all states were to regulate railway capitalization, the differences in those statutes and in their application would make for embarrassment and injustice.

The Southern Pacific desired to issue certain securities and received therefor the approval of that California Commission. After a considerable time the approval of the Arizona Commission was also secured upon condition that a certain proportion of the proceeds be spent within that state—but by that time the market had so changed as to convince the Southern Pacific that such securities should not be marketed. The New York Central a few years ago put forth a large issue of refunding mortgage bonds and, though only 142 miles of its more than 6,000 miles of line lay within Illinois, a fee of $600,000 was collected by that state.

A second fundamental weakness of state regulation results from the fact that state bodies seem, inevitably, to regard problems which are often of broad or general interest from a local or provincial point of view. Indeed, state regulation of railways has in many instances seemed to have as its deliberate purpose the closure of the markets of one state to producers or distributers situated in another. In no instance has emphasis upon local advantage been more conspicuous than in the Shreveport case, in which the adjustment of intrastate rates was shown clearly to serve as an effective barrier to distributing points located without Texas. Yet, while Louisiana was complaining of this prejudicial adjustment of Texas rates, it was maintaining a system of rates within its own boundaries which prejudiced the interests of Natchez little less than were those of Shreveport prejudiced by Texas! Other investigations in Southwestern territory have shown clearly that both Arkansas and Missouri long enforced schedules of intrastate rates which placed a heavy burden upon Memphis in its efforts to share in the business of those two states. Nebraska likewise applied a schedule of rates which served to bar points without the state from participation in the trade of that commonwealth. Many other instances of similar disregard for the rights of those situated beyond state boundaries may be given, but the mere statement, the truth of which is so fully appreciated by any student of rates, that *interstate*

rates have in the past been shaped in an important way by *intrastate* regulations, gives sufficient additional emphasis to the importance of the conflict between states and between national and local interests. And the intensity of the conflict tends to increase, rather than lessen.

EXCELLENT WORK DONE BY CERTAIN STATES

This delineation of the faults of state regulation, however, fails to give recognition to the high character of the performance in certain jurisdictions. Perhaps none of the states has regulated more fairly and justly than Wisconsin. In speaking of the work of the regulative body of that state, a publicist declares, "The spirit of fairness which has characterized the action and orders of the Commission in railroad matters, and which has earned for it the confidence and good-will of railroads and shippers alike, is perhaps its greatest accomplishment and the one it was especially created to establish." [1] In commenting upon the work of state commissions, another writer, who speaks from a railway point of view, says, "In a few states, among which Wisconsin ranks first, most of the regulatory legislation has been intelligently and fairly drafted; the members of the commissions have been chosen largely because of their special fitness, and have not allowed political or other improper influences to control them; and regulation has, in consequence, been fair and beneficial to both the railways and the public." [2] Yet it must be agreed that the regulatory policy of too many commissions has been restrictive and cantankerous in nature, short-sighted in point of view, and provincial in outlook. And it is such an attitude, all too common, that has eventuated during the past decade in the pronounced movement toward a restriction of state control. It has often been said of the railways that their worst enemies were those of their own number which per-

[1] Holmes, Fred, *Regulation of Railroads and Utilities in Wisconsin*, p. 276.
[2] Dunn, S. O., *The Regulation of Railways*, p. 274.

sistently acted contrary to public interest. So may it be said of state regulation: the strongest argument for the further extension of federal control is the continued unwillingness of a few recalcitrants to "look beyond the end of their noses."

RECENT EXTENSIONS OF FEDERAL AUTHORITY

What, then, of the future of state regulation? To all students of the problem it is apparent that commerce is a unit, that trade takes no cognizance of state lines. Obviously it is with full recognition of this fact that the solution must be worked out. As indicated in the preceding paragraph, the primary point of conflict has been in matter of rates. Individual rates have caused little difficulty but local and national interest have come to grips definitely upon questions involving the rate structure and the general level of rates. Wherever such conflict developed, the Federal Government found judicial support for the subordination of state to national interests, the position of the Supreme Court being clearly expressed by Justice Hughes who declared, "Wherever the interstate and intrastate transactions of carriers are so related that the government of the one involves the control of the other, it is Congress, and not the state, that is entitled to prescribe the final and dominant rule." [1] In the Shreveport case the right of the Interstate Commerce Commission to modify offending state freight rates was recognized and only a few years later its power to modify even a statutory two-cent fare which prejudiced interstate traffic received approval.[2] In the Transportation Act Congress sought to put in statutory form this doctrine of federal supremacy. To this end it declared that, whenever the Interstate Commerce Commission, after full

[2] Shreveport case—*Houston, East and West Texas Railroad Company* v. U. S., 234 U. S. 342.

[1] Illinois Fare case—*Illinois Central Railroad Company* v. *State Public Utilities Commission of Illinois et. al.*, 245 U. S. 493.

hearing, finds that any rate or regulation imposed by state authority is prejudicial to interstate commerce, it shall substitute for such unlawful rate or regulation a rate or regulation which will remove the discrimination or preference, and this order of the federal body shall be observed by the carriers "the law of any state or the decision or order of any state authority notwithstanding." The sole obligation imposed upon the Interstate Commerce Commission is that it shall notify the state authorities involved. However, the law authorizes the Commission to hold joint hearings with such state authorities if it wishes to do so.

In the application of this section of the Transportation Act, federal control has been extended to such a point as to be practically exclusive with respect to rate structures and the general level of intrastate rates. Although representatives of state commissions who sat with the Interstate Commerce Commission in the rate hearing of 1920, recommended intrastate increases equal to those authorized upon interstate traffic, certain states refused to approve such advances in whole or in part. Illinois and Nebraska were among those contesting rate advances upon freight, Wisconsin and New York upon passenger business, the Wisconsin Commission holding that it was prevented from increasing the passenger rates because of the Two-Cent-Fare law which still remained upon the statute books. In passing upon these protests, the United States Supreme Court upheld the authority of the Federal Government in every instance and in its entirety.[1]

In addition to transferring a large degree of control over rates to the Interstate Commerce Commission, the Transportation Act restricted state action along other lines. Exclusive jurisdiction over the issuance of securities by railway corporations was transferred to the federal body, likewise control over all questions of construction or abandonment of properties which participate in interstate commerce,

[1] Wisconsin Passenger Fare case—*Railroad Commission of Wisconsin* v. *Chicago, Burlington and Quincy Railroad Company,* 257 U. S. 563.

either directly or as connecting lines. Authority over consolidation was authorized by this Act also: again the declaration was made that consolidations approved by the Commission might be effected, "the law of any state or the decision or order of any state authority to the contrary notwithstanding."

Two recent decisions of the United States Supreme Court appear to assert an increased degree of federal control over service matters, too. In the first, the Supreme Court held that an order of the Missouri Public Service Commission requiring the stoppage of two through trains at a point in southern Missouri represented an unreasonable demand: "any deficiency in their schedule or equipment can be corrected without burdening interstate commerce by stopping the trains in question." [1] In the second decision the high court denied the California Railroad Commission the power to order the construction and use of a costly union passenger terminal in Los Angeles by three railways named: the financial burden of the project was too great to be assumed by the carriers involved without the approval of the Interstate Commerce Commission, and the relocation of tracks and other facilities also necessitated its sanction.[2] Other cases have pointed in the same direction.

FUTURE OF STATE REGULATION

Prophecy is at best a fruitless task and to attempt to indicate the probable adjustment between state and federal governments in matters of railway control during even the next decade is a dubious undertaking. None the less, it appears that the power to pass upon general methods of rate construction and upon questions involving the rate level has definitely passed, and properly so, to the Interstate Commerce Commission. Beyond that, however, a large

[1] *St. Louis—San Francisco Railroad Company* v. *Missouri Public Service Commission*, 261 U. S. 369.

[2] *Railroad Commission of California* v. *Southern Pacific et al.*, 44 Supreme Court Reporter.

field remains to state commissions in the adjustment of intrastate rates and the elimination of discriminations affecting intrastate traffic. All control over capitalization practices and primary jurisdiction over construction and abandonment seem now to rest in federal hands. Consolidation, too, will be in the future a federal problem as will the decision concerning interrailway agreements of a simple or involved type. To the state, however, will remain for long, perhaps permanently except as abuses of power appear, control in a number of important fields. Service matters will certainly remain largely in the hands of state bodies, as will the supervision of terminals and station facilities and control over grade crossings. The taxation of railway properties will also continue to rest with the state, and the exercise of the police power, with its consequent control over questions of safety, sanitation, and so forth, cannot be denied these units. In short, then, despite the extent to which the states have been shorn of power, a distinct place in the field of railway regulation remains to the state commissions.

This has been well put by Hon. B. H. Meyer, then speaking as chairman of the Interstate Commerce Commission and in behalf of that body, in a letter to the general solicitor of the National Association of Railway and Utilities Commissioners, who had made inquiry of him as to the part which state regulative bodies have to play under existing laws and judicial decisions. After discussing changes made by the Transportation Act and the authority given the federal body to cooperate with state authorities, Mr. Meyer said:

> But in following that method this commission deals only with the relationship of rate structures, state and interstate or foreign, a relationship which the Supreme Court has held to be within the province of Congress. In the absence of such defects in relationship this commission is not empowered to deal with the intrastate rates maintained by carriers who come under its jurisdiction because also engaged in interstate or foreign commerce.
>
> It is thus manifest that under existing federal law there are important regulatory fields, embracing perhaps one-half of the passenger traffic and one-fifth of the freight traffic of steam rail-

roads as well as the bulk of telephone service, which are left untouched and uncared for unless the states continue to maintain their own regulatory bodies empowered to cover those fields. . . . In our opinion the continued existence and proper maintenance of state commissions is essential to adequate railroad regulation, assuming, as you ask us to assume, that the law as it now stands remains unchanged.

Even in respect of the intrastate-interstate maladjustments to which the jurisdiction of this commission extends, the wisdom of avoiding its exercise, in the mutual interest of shipper and carrier, is now concretely recognized. As you know, on May 3, 1922, a joint committee comprising five members of this commission and eight representatives of the state commissions, sitting at Washington, formulated and reported a plan of cooperative action by the federal and state commissions, through joint conferences and hearings, in matters affecting both. This plan of coordinated effort . . . . has been put into operation in several appropriate cases. Thus the undeniably sound doctrine that in the domain of commerce there should be no state lines is in a fair way to become established in practice—a result obviously impossible of attainment without the existence and cooperation of state commissions.[1]

Beyond that statement little remains to be said. There is need of state control, yet state regulation must be subordinate to federal in matters of broader than state concern. Both types of supervision will remain; it is to be hoped they can operate with diminishing friction.

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XXX

FEDERAL REGULATION OF RAILWAYS: ACT OF 1887

Important changes in the railway field. The Windom Report. Early legislative attempts. Demand for effective federal control. Provisions of the Act to Regulate Commerce. Early response of the railways. Difficulties experienced by the Commission: compelling testimony; execution of orders; refusal of courts to accept findings of fact as final. Import and export rates. Maximum Freight Rate case: reasoning of the court and effect of the decision. The Long-and-Short-Haul clause: early difficulties of application and its final emasculation. Commission now without power. Results of the Act to Regulate Commerce.

THE appearance of railway regulation in the various states during the seventies is to be explained largely upon the basis of economic conditions governing in particular areas during that time. With an improvement in those economic conditions, the demand for regulation tended to subside. Just so is federal action with respect to interstate traffic to be explained on an economic basis, and to changes in the economic situation are due largely the evolution and development of our federal regulatory policy. During the early years of railway building almost sole stress was placed by the public upon an increase of mileage, and implicit faith in the efficacy of competition as a protective force served as a further deterrent to regulation. To have expected regulative action by Congress before the railway net had expanded even beyond the needs of the country, and until the belief in competition as a panacea for all ills economic had been shaken, was unreasonable. By 1885 railway construction had clearly exceeded immediate needs, and the futility of competition as a safeguard against various abuses was patent. In consequence, the time was ripe for positive action by the Federal Government.

IMPORTANT CHANGES IN THE RAILWAY FIELD

Sentiment in favor of federal regulation developed during a period of perhaps 15 years prior to the actual passage of the Act of 1887. One of the more important causes of this growing interest was the lower price level which governed in the agricultural West and Southwest during a considerable portion of the seventies. Economic changes, principally the industrial depression following the panic of 1873, forced a decline in the prices of farm products, such as grains and live stock, to a point where railway rates, which under normal conditions would have burdened agricultural enterprise but little, were oppressive. Another significant cause, closely connected with that just mentioned, was the comparatively high level of rates which governed in those sections and at those points where no competition existed. Keen competitive activity throughout the seventies had, in many instances, forced rates upon competitive business to an unremunerative level, and in every case such rates had dropped far below those governing the movement of traffic into and out of monopolistic points. Whether the level of rates charged at these latter points was actually too high is difficult to say, though without doubt many individual rates represented extortion by the carrier. Yet a comparison of the rates charged upon competitive business and upon traffic not benefited by competition gave strong support to the protest against the level of the latter. These differences aroused public opinion to a high pitch at the points which suffered the heavier burden.

A second factor which operated to hasten federal regulation was the growing volume of interstate traffic. During the early years of railway development in the United States, railway traffic had been largely local in character. With the articulation of the railway net and an increasing territorial and technical division of labor, distance traffic gradually acquired importance. This was true particularly of the several decades prior to 1885, marked as they were by the

rapid development of the West. Into this territory there flowed from the East a traffic made up largely of finished products and in return there moved a heavy tonnage of farm products, among which grain and live stock were the most important. Practically a negligible factor during the early years of railway building, interstate traffic had now so developed that it approximated 75% of the total tonnage handled. This situation, with the prospect of a continued increase in the proportion of interstate traffic, made federal action certain; even though the state were permitted to regulate interstate commerce in the absence of federal legislation, such control could not prove other than inadequate.

THE WINDOM REPORT

Indicative of the dissatisfaction which existed some years prior to positive federal action, is the report of the Windom Committee. This committee, headed by Senator Windom of Minnesota and appointed by the Senate in 1872 at the suggestion of President Grant, made an extended and detailed investigation of the transportation situation, reporting to Congress in 1874. The significant need of the period as interpreted by this committee was lower rates. To aid in the accomplishment of this end, two recommendations were made, both of which serve to emphasize the persistence of a belief that the solution of the problem of high rates lay in the direction of increased competition. Holding that waterways might serve as effective regulators of railway rates, it was recommended that these be so improved and extended as to enable them to compete along main channels of traffic movement. Supplementary to these waterways it was suggested that, under the power possessed by Congress to establish post-roads, a railway should be built from the Mississippi River to the Atlantic Coast. This railway was to be owned and operated by the government, and was to render freight service upon such terms as would insure a reasonable level of rates between the Middle West and the

East over lines privately owned and operated. Another recommendation made by this committee, and one which reflected the attitude of the more thoughtful portion of the public even during this early period, urged the establishment of governmental control over railway capitalization and financial policies. Even at this early date the practices of railway promoter and speculator, and of the "plunderbund," of which Jay Gould and "Jim" Fiske were notable examples, had become malodorous.

EARLY LEGISLATIVE ATTEMPTS

The growth of sentiment favoring federal regulation of the railways is well shown by the various attempts made prior to 1887 to enact legislation providing for governmental control. In 1874 the so-called McCreary Bill, similar in nature to Granger legislation and providing particularly for rate control, passed the House of Representatives by a slight majority, but this measure failed even to secure consideration in the Senate. In 1877, the Reagan Bill was passed by the House of Representatives by a somewhat larger majority but it, too, failed to come to a vote in the Senate. This measure, championed by Judge Reagan, of Texas, who later served as chairman of the Texas Railroad Commission during the constructive period of its work, prohibited pooling and discrimination and required the publication of rates. Not until 1884, however, was it possible to secure action by the Senate, which has so frequently served well the purpose for which it was intended—a "cooling" body. In that year both the House and the Senate took action. Bills calling for the establishment of federal regulation passed both bodies by a large majority, but inability to effect a compromise between the somewhat conservative Senate measure and the more radical program set forth in the House bill, delayed for several years the actual establishment of federal control. A further spur was needed to secure enactment of needed regulation.

DEMAND FOR EFFECTIVE FEDERAL CONTROL

The growing demand for federal action throughout more than a decade prior to its realization rested in no small measure upon an increasing public hostility toward the railways, a hostility due in considerable degree to the arrogance of railway management in dealing with shipper and public bodies alike. Indeed, the oft-quoted phrase, perhaps erroneously charged to Commodore Vanderbilt, "The public be damned," expresses all too accurately the contempt in which railway management held public demands and indicates measurably the attitude of these "monarchs" toward those dependent upon them for carrier service. The public felt, too, that it could distinguish a clear tendency toward monopoly. Pools and associations were increasing in stability and degree of control; at this time little traffic moved throughout the country which was free of the control of some type of railway organization. In the newer areas in which building was progressing rapidly, agreements relative to the division of territory were frequently made, too—though, it might be added, as frequently broken. Such attempts to avoid competition were regarded with particular disfavor by the people of those areas. The numerous financial abuses and malpractices so evident during the seventies and early eighties also antagonized the public. Fraud, which so thoroughly permeated the railway structure during these years, did much to precipitate the "Railway Panic" of 1884.

Beyond these factors of a somewhat general character, certain specific complaints were urged against the railways. These are excellently summarized in the report of the Cullom Committee, which was placed before the Senate in 1886 by its Chairman, Senator Cullom. Investigation showed that, in the years following the report of the Windom Committee, conditions had changed greatly: it was clearly evident that the earlier body had both underestimated the force of competition in rate-making and failed to realize the ex-

tent to which the railways were able to decrease rates upon low-grade traffic. During the intervening years keen traffic rivalry among the railways had so lowered the general level of rates upon competitive class movements and so reduced rates even upon commodity traffic similarly situated that, by the middle eighties, only the most efficient of the water carriers were able to eke out an existence in competition with them. Competition, while lowering certain rates, had so functioned, however, as to make a bad matter somewhat worse: no longer did the prime need appear to be a lower average level of charges but, rather, a requirement that *all* persons, *all* places, and *all* types of traffic receive equal treatment. In the words of the Cullom Committee "the paramount evil chargeable against the operation of the transportation system of the United States as now conducted is unjust discrimination between persons, places, commodities, or particular descriptions of traffic." Beyond this protest against discrimination, notice was again taken of capitalization practices and, for the second time, it was recommended that federal control be established in this field.

It is probable that public hostility to the railways, which began to "head" at this time, reenforced by the vigorous protest of the Cullom Committee, would soon have compelled federal legislation without further cause. But the additional impetus furnished by a decision of the Supreme Court forced action at once. Within a decade after it was given, the Piek decision was reversed: the judgment handed down in the Wabash case stripped interstate movements, a major part of the total, of all governmental protection. The immediate re-establishment of control over this large and growing element of traffic was demanded by the public.

PROVISIONS OF THE ACT TO REGULATE COMMERCE

The impelling influence of the Wabash decision caused the Senate and House bills, dealing with regulation of interstate commerce, to be taken up in Conference Committee

at once. Here a compromise resulted between the more rigid House measure and the somewhat conservative Senate bill. The bill as reported from conference passed both houses by an overwhelming majority and, early in 1887, regulation of railways by the Federal Government became a fact. This law, based upon the powers granted the Federal Government by the interstate commerce clause of the Constitution, had judicial sanction in the Granger cases, decided more than a decade earlier; therefore the existence of a sound constitutional basis for thoroughgoing regulation was not questioned.

The Act to Regulate Commerce of 1887 consisted of 24 sections. A brief summary of the more important of these follows:

Section 1. Provides that the Act shall cover all interstate movements of freight and passengers by land as well as by land and water in case of a continuous shipment, even to foreign countries. This section further provides that all charges shall be reasonable and just, and prohibits all unjust and unreasonable charges.

Section 2. All unreasonable personal discriminations, whether in the form of special rates, rebates, or otherwise, are prohibited.

Section 3. Discriminations between localities and commodities are forbidden, and equal facilities for the interchange of traffic with all connecting lines are required.

Section 4. This section, known as the Long-and-Short-Haul clause, declares: "That it shall be unlawful for any common carrier subject to provisions of this Act, to charge or receive any greater compensation in the aggregate for the transportation of passengers or of like kind of property under substantially similar circumstances or conditions, for a shorter than for a longer distance over the same line and in the same direction, the shorter being included in the longer distance; but this shall not be construed as authorizing any carrier within the terms of this Act to charge and receive as great compensation for a shorter as for a longer distance: Provided, however, that upon application to the Commission appointed under the provisions of this Act, such common carrier may, in special cases, after investigation by the Commission, be authorized to charge less for longer than for

shorter distances for the transportation of passengers or property; and the Commission may from time to time prescribe the extent to which such designated common carrier may be relieved from the operation of this section of the Act."

Section 5. All railways subject to the Act are prohibited from pooling traffic or earnings, aggregate or net.

Section 6. All rates and fares shall be printed and posted for public inspection at all stations as well as filed with the Interstate Commerce Commission at Washington. No advance in rates shall be made except after 10 days' notice and all charges other than those published are unlawful.

Section 8. A carrier is liable for damages on account of losses sustained by any person or persons as a result of the violation of this Act.

Section 9. Any party claiming injury under the Act may bring action before the Commission or the Federal courts, power to compel testimony and force production of papers essential to such actions being given.

Section 10. A penalty not to exceed $5,000 shall be imposed for each violation of the law. (In 1889 so amended as to make certain violations punishable by both fine and imprisonment.)

Section 11. An Interstate Commerce Commission of five members shall be appointed by the President with the consent of the Senate, no more than three of these Commissioners to be of the same political party, and none of them to be interested in railway securities or permitted to engage in any other work while in the office, each to serve for a term of six years.

Section 12. The Commission is given power to make inquiries with the right to compel all information necessary to the proper exercises of its authority under this Act. This power over witnesses and the production of papers shall be enforced by the United States courts in case of refusal.

Section 15. The Commission shall, if satisfied after investigation that the law has been violated, serve notice upon the violating carrier to desist from such acts, or to make reparation for injury done.

Section 16. Upon refusal of a carrier to observe an order of the Commission, that body shall petition in Federal courts for a writ or writs to compel obedience.

Section 20. The Commission is empowered to require annual

detailed reports from carriers subject to the Act containing information as to finance, equipment, revenues, and expenses, both operating and non-operating, and "a complete exhibit of the financial operations of the carrier each year, including an annual balance sheet," these statements to be made according to forms prescribed by the Commission.

EARLY RESPONSE OF THE RAILWAYS

Though the railways vigorously opposed the passage of the Act of 1887, they conformed to its requirements for several years with a surprisingly cheerful spirit. In 1888 the Commission declared that the carriers were complying promptly with orders. This attitude continued until about 1890 and, as a result of such close cooperation between the Commission and the carriers, many desirable changes were effected. In Trunk Line territory tariffs were so readjusted as to conform quite generally to the long-and-short-haul principle, this readjustment resulting in a general reduction of local rates. Even in Southern territory, where violations of the long-and-short-haul principle were most numerous and most glaring, many readjustments which lessened or eliminated place discriminations were made at the suggestion of the Commission. Important progress was made, also, in the direction of a more uniform classification of freight and in the elimination of unreasonable discriminations affecting particular items of traffic. Pools were generally disbanded, and railway associations reorganized in conformity with the new Act. And, finally, great gains were scored in the compilation of comprehensive statistical data and many needed improvements were made in accounting practice.

DIFFICULTIES OF THE COMMISSION

By 1890, however, humility, induced by defeat, had disappeared, and the railways first seriously challenged the Act. Despite provisions which forbade personal discrimina-

tion, this abuse had persisted. To eliminate it the primary need of the Commission was adequate evidence, but such evidence could rarely be secured except from the benefited shipper or the carrier's agents. The first important reverse suffered by the Commission in the exercise of its powers resulted from its attempt to compel testimony from one Counselman, who was suspected of enjoying a lower than published rate upon grain. This shipper refused to answer questions, taking refuge in the fifth amendment to the Constitution of the United States, which declares that "no person . . . . shall be compelled in any criminal case to be a witness against himself." The Commission contended that the immunity from criminal prosecution provided in the Act to Regulate Commerce afforded the witness necessary protection, but the United States Supreme Court in 1893 held otherwise. In ordering the defendant discharged, it said that "a statutory enactment to be valid must afford absolute immunity for the offense to which the question relates." [1] To meet the terms of this decision Congress amended the Act at once so as to give the civil, as well as the criminal, immunity required by the Supreme Court. Yet it was not until the court spoke in the Brown case [2] in 1896 that the power of the Commission to compel testimony, even under the Act as amended, was finally recognized. During these years the Commission was powerless to secure much of the evidence that was essential to the adequate protection of public interest. Consequently, even though in the end the Commission's right to demand a complete statement of fact was fully supported, immeasurable injury had resulted from its inability to secure, during the critical period of 1890-1896, much-needed evidence.

The Commission experienced further embarrassment because, under the Act, its orders became binding only after affirmative action by one or another of the Federal courts. Ordinary procedure before the Commission involved the

[1] *Counselman* v. *Hitchcock*, 142 U. S. 547.

[2] *Brown* v. *Walker*, 161 U. S. 591.

filing of a formal complaint, a hearing, and the issuance of an order by that body. There was a certain necessary interval between the filing of the complaint and the issuance of an order and this was often increased in the more difficult cases by delay on the part of the Commission, knotty cases sometimes being sidetracked for a considerable period. But the order, once issued, had no binding force upon the carriers until supported by a judicial writ and, even though such an affirmative writ *were* issued, appeal might be taken from one court to another until years passed before a final decision was rendered. Indeed, the average duration of cases carried through the courts was not less than four years and, in certain instances, as much as nine years elapsed before the final word was spoken. This situation occasioned intolerable delay in correcting objectionable practices and in affording relief to injured parties, a consequence which reacted advantageously to the railways and harmfully to the Commission.

The delay in the enforcement of orders pending final decision by the courts placed a sufficiently heavy handicap upon the Commission, but its burden was greatly increased by the refusal of the former to accept findings of fact made by the Commission as final. In 1888, in the so-called Kentucky and Indiana Bridge case,[1] the court treated the appeal as an original proceeding and therefore considered it *de novo*. This policy involved a duplication of expense, which was considerable, but far worse, it tended to make proceedings before the Commission only a necessary skirmish, a preliminary to the "finish fight" in the courts. It was essential that the Commission issue an order upon each formal complaint filed; yet, since both complainant and carrier realized that presentation of the full case before this body was relatively unimportant, Commission findings often rested, perforce, upon only a partial statement of the basic facts. It is not strange, then, that many orders promulgated

[1] *Kentucky and Indiana Bridge Co.* v. *Louisville and Nashville Railroad Co.*, 37 Federal Reporter 567.

by the Commission were reversed by the courts when *all* facts had been presented. In this matter the courts unconsciously "played the game" of the carriers who were contesting regulation not only in the courts but before the public: the citation of the numerous reversals of Commission orders constituted a splendid argument against the soundness and wisdom of that body and against the general principle of regulation. Yet, if the irregularity of procedure is not alone sufficient to account for the divergence in judgment between Commission and court, differences among the courts themselves may be offered as further evidence of uncertainty in interpreting the law. Indeed, there were but few important cases which were decided uniformly by successive courts and, in many, the Interstate Commerce Commission met final defeat only after it had won before the lower courts. Both the Commission and the courts were "blazing trail" through an unmapped area which presented many obstacles, legal and economic. The difficulty of its position was such that the Commission should not have stood condemned before the bar of public opinion; rather, it deserved congratulation for progress made in the direction of effective regulation.

The unwisdom of handling appeals from Commission orders *de novo* was recognized at length by the Supreme Court. In the Social Circle case [1] that tribunal stated that the law intended that all material facts should be introduced in the original proceeding before the Commission. Nevertheless, it was almost 15 years later that legislative and court action combined to afford the Commission full protection in this particular.

IMPORT AND EXPORT RATES

The first serious reversal of the Commission in its attempt to apply the Act arose out of its endeavor to eliminate dis-

[1] *Cincinnati, New Orleans and Texas Pacific Railway Company* v. *Interstate Commerce Commission,* 162 U. S. 184.

crimination between domestic traffic on the one hand and export and import tonnage on the other. Upon the latter, the rates made by the railways were far below those charged for similar movements of purely domestic business. In fact, the rate from foreign port to point of destination in the United States was often much less than the rate covering domestic movements from port of entry to that same destination. In one case a rate from Liverpool to San Francisco via New Orleans was $1.07 per 100 pounds, while the rate from New Orleans to San Francisco upon a domestic shipment of like character was $2.88! This represented grievous discrimination against the American shipper, but the railways justified the disparity upon the basis of conditions beyond their control—of competition which they were compelled to meet if they were to share in the traffic at all. When relief was sought before the Commission, that body held such discrimination unreasonable. The Commission justified its position upon an interpretation of the Act which restricted it in the exercise of its powers to the consideration of domestic conditions. Upon appeal, the Supreme Court reversed the Commission, declaring that body must consider *all* facts and conditions influencing, whether operating within or without the boundaries of the United States, though a strong minority opinion upheld the Commission.[1] Thus the Commission found itself without power to eliminate a type of place discrimination which has long proved dangerous to the domestic producer.

MAXIMUM FREIGHT RATE CASE

Perhaps the most serious blow suffered in the administration of the Act of 1887 was the denial by the Supreme Court of the Commission's power to prescribe maximum freight rates. The Commission had interpreted the law as giving it power not only to investigate and award redress in the

[1] *Texas and Pacific Railway Company* v. *Interstate Commerce Commission,* 162 U. S. 197.

case of rates which were found to be unreasonable, but also to prescribe a reasonable rate which should govern in the future. In accordance with this interpretation the Commission issued orders prescribing both absolute and relative rates, and to these orders the carriers responded with a promptness which indicated their concurrence in the belief that the Act permitted the Commission to fix reasonable rates. In fact, even with respect to freight classification, which was not mentioned specifically in the law, the readiness of the railways to comply with suggestions and orders emanating from the Commission implied an absence of doubt as to the legality of Commission action.

To all appearances, then, for almost 10 years both the Commission and the carriers believed that the Act of 1887 conferred rate-making power and the first intimation to the contrary came, strange to say, from the courts rather than from the regulated corporations. In the Social Circle case,[1] concerned with the reasonableness of rates to Social Circle, Georgia, and involving primarily the application of the Long-and-Short-Haul clause, the Commission had lowered the rate from Cincinnati to Atlanta. When the case was decided by the Supreme Court of 1896, the court, in an obiter dictum concerning the rate-making power, not merely indicated its doubt concerning the bestowal of that power upon the Commission, but declared that it could find nothing in the Act which, either directly or by inference, clothed that body with such power. The carriers acted without delay—the rate-making power was challenged. Immediately certain lower court decisions were handed down, which unequivocally denied that the Act bestowed the authority to fix rates. Final decision was given upon this point in 1897 when, in the Cincinnati Freight Bureau case, more frequently termed the Maximum Rate case,[2] the Supreme Court cate-

[1] *Cincinnati, New Orleans and Texas Pacific Railway Company* v. *Interstate Commerce Commission,* 162 U. S. 184.

[2] *Interstate Commerce Commission* v. *Cincinnati, New Orleans and Texas Pacific Railway Company,* 167 U. S. 479.

gorically denied the right of the Commission to prescribe rates.

The position of the court in this case is set forth so clearly in its decision that a portion of it may well be quoted. After declaring it to be quite a different thing to prescribe rates which shall be charged in the future—a legislative act, and to inquire whether the charge made and collected is reasonable—a judicial function, the court says:

> We have, therefore, these considerations presented: First. The power to prescribe a tariff of rates for carriage by a common carrier is a legislative, and not an administrative or judicial function and, having respect to the large amount of property invested in railroads, the various companies engaged therein, the thousands of miles of road, and the millions of tons of freight carried, the varying and diverse conditions attaching to such carriage, is a power of supreme delicacy and importance. Second. That Congress has transferred such a power to any administrative body is not to be presumed or implied from any doubtful and uncertain language. The words and phrases efficacious to make such a delegation of power are well understood, and have been frequently used and, if Congress had intended to grant such a power to the Interstate Commerce Commission, it cannot be doubted that it would have used language open to no misconstruction, but clear and direct. Third. Incorporating into a statute the common-law obligation resting upon the carrier to make all its charges reasonable and just, and directing the Commission to enforce the provisions of the Act, does not by implication carry to the Commission, or invest it with the power to exercise, the legislative function of prescribing rates which shall control in the future. Fourth. Beyond the inference which irresistibly follows from the omission to grant in express terms to the Commission this power of fixing rates is the clear language of section 6 recognizing the right of the carrier to establish rates, to increase or reduce them, and prescribing the conditions upon which such increase or reduction may be made, and requiring, as the only conditions of its action—First, publication; and, Second, the filing of the tariff with the Commission. The grant to the Commission of the power to prescribe the form of the schedules, and to direct the place and manner of publication of joint rates, thus specifying the scope and limit of its functions in this respect, strengthens the conclu-

sion that the power to prescribe rates or fix any tariff for the future is not among the powers granted to the Commission.

These considerations convince us that under the Interstate Commerce Act the Commission has no power to prescribe the tariff of rates which shall control in the future and therefore cannot invoke a judgment in mandamus from the courts to enforce any such tariff by it prescribed.

EFFECT OF MAXIMUM FREIGHT RATE DECISION

The effect of this holding was felt immediately. Possessing no longer the power to prescribe rates, the Commission was able merely to judge the reasonableness of a rate *after* the fact. Such negative control extended in nowise beyond the previous scope of court action and was equally inadequate to protect public interest; the *rate actually paid* has been passed on to the consumer as an added charge or deducted from the sum paid the producer, long before any recovery is possible. Even though a refund be ordered, it is the dealer, not the one upon whose shoulders the charge ultimately rests, who is indemnified. Beyond this power to order restitution upon the basis of the difference between the rate charged and that adjudged reasonable by it, the Commission was helpless; the carrier could substitute one rate after another for those adjudged unreasonable, each lower than the rate prohibited but each still in excess of the charge held reasonable and used as the basis of the award, the shipper's only recourse lying in successive appeals to the Commission. Commission control, circumscribed by the courts, was of no greater value to the shipper and to the public than had been judicial restraint previously—and its inadequacy had occasioned the demand for positive control.

EARLY HISTORY OF SECTION FOUR

The Maximum Freight Rate decision seriously crippled the work of the Commission, but the final blow delivered by the courts left that body quite without the power of

effective action. That blow was struck by the Supreme Court late in 1897, in the Alabama Midland case [1] which involved the interpretation of Section 4, the Long-and-Short-Haul clause. But before presenting this case, it will be well to trace the history of the Commission's struggle to apply the section effectively. In one of the earliest cases decided, the Commission, recognizing that the prohibition voiced in Section 4 applied only where circumstances and conditions were essentially similar, declared that the carriers might judge as to the similarity or dissimilarity in circumstances in the first instance, such judgment being subject to review and amendment on the part of the Commission itself. The Commission recognized two factors as constituting dissimilarity—the competition of carriers, both water and rail, not subject to the Act, and "rare and peculiar" circumstances governing among carriers under the statute. Upon this basis, Section 4 of the Act was administered without serious challenge until 1892 when the first difficulty arose—the meaning of "line" in the phrase "over the same line."

One Osborne sought repayment, because of an alleged overcharge upon a shipment of corn from a point in Iowa to Chicago, by the amount that it exceeded that portion of the through rate from a more distant point, Blair, Nebraska, to New York City which was assignable to the movement west of Chicago. Although the holding of the Circuit Court of Appeals [2] in this case was in accord with previous conclusions, both of the courts and the Commission, in that the claim was disallowed, obiter dictum again gave rise to difficulty. In this excess verbiage the court suggested that a joint line formed by two roads is quite distinct from the component roads and that there was nothing in Section 4 to prevent a joint rate from being as low as, or even lower than, an included local rate on either line.

[1] *Interstate Commerce Commission* v. *Alabama Midland Railway Company*, 168 U. S. 144.

[2] *Chicago and North Western Railway Company* v. *Osborne*, 52 Federal Reporter 912.

The apprehension of the Commission that this interpretation might be used to nullify the purpose of the Long-and-Short-Haul clause was quite justified. It opened the door to innumerable evasions, for as many "lines" were now declared to exist over a single set of rails as there were traffic agreements. The lower courts accepted this obiter dictum in such a way as to embarrass seriously the enforcement of Section 4; more, they so enlarged upon it that the intrastate portion of a movement was freed from the jurisdiction of the Act when the total interstate rate was ascertained by adding to any interstate rate, covering a part of the movement, an intrastate rate governing the remainder of the movement.

Not until 1896 in the Social Circle case[1] was this question finally decided by the Supreme Court. At the request of the railway serving that point, connecting carriers had refrained from quoting through rates to stations on that line and the United States Circuit Court, in conformance with the reasoning found in other cases, held that the railway in question was not subject to federal jurisdiction as to rates which violated the Long-and-Short-Haul clause. This decision was reversed by the Supreme Court, however; it held that, while no road could be compelled to enter into agreements with connecting carriers, traffic moving to a local point upon a through bill of lading which covered an interstate movement was subject to the Act to Regulate Commerce. The high court went still further: it declared that, in the case of a shipment over several roads, these roads constituted but a single route and were in no sense separate lines; in consequence, rates to included points must conform to the requirements of Section 4 except as conditions are shown to be dissimilar. This represented a complete vindication of the Commission in its interpretation of the word "line" and promised to reestablish its control over this type of place discrimination. Such hope was not to be realized,

[1] *Cincinnati, New Orleans and Texas Pacific Railway Company* v. *Interstate Commerce Commission*, 162 U. S. 184.

however, for a new attack was successful in knocking the entire section into a cocked hat.

EMASCULATION OF FOURTH SECTION

From the earliest application of Section 4, the railways had contended that competition of carriers subject to the Interstate Commerce Act made for dissimilarity within the meaning of the law. This contention the Commission refused to accept as sound and, when the railways showed an inclination to regard even the slightest variations in conditions as "rare and peculiar," hence justifying exception to the law, the Commission reversed its earlier policy of permitting the carriers to determine what constituted dissimilarity and took that privilege to itself. In passing upon petitions for exceptions which came before it, the Commission was controlled by a desire to so interpret and apply the Long-and-Short-Haul clause as to accomplish in some measure the purpose which actuated Congress to pass it, namely, the elimination of wholly indefensible instances of place discrimination. The protests voiced against this abuse had been most vigorous, and it was clear that more than a mere "slap on the wrist" was expected from the Commission by the advocates of the section, in Congress and out. However, the Alabama Midland decision left the Commission scarce the power to administer that punishment. From a conservative court the public received not interpretation *of* law, but rather, interpretation-*made* law!

The Alabama Midland charged a rate on phosphate rock to Troy, Alabama, an intermediate station, higher than that charged to Montgomery, though the rock destined for the latter place moved through Troy. It was further declared that cotton rates discriminated against Troy and it was shown that the rates charged upon its traffic from points in the North were higher than to Montgomery, farther distant. Upon investigation the Commission ordered the discrimination removed. From this order an appeal was

Figure 37: Map illustrating the Alabama Midland Case.

taken to the courts and in 1897 the Supreme Court reversed the Commission, declaring that body had erred in refusing to recognize market or carrier competition at Montgomery as a justification for the lower rate accorded that point.[1] Though it did not name such competition as *alone* justifying exception to the Long-and-Short-Haul clause, it held that it must be considered. Quite naturally the roads immediately asserted that this holding legalized practically all

[1] *Interstate Commerce Commission* v. *Alabama, Midland Railway Company,* 168 U. S. 144.

departures from the long-and-short-haul principle. A complete breakdown of the clause was in prospect.

Encouraged by certain lower court decisions, however, the Commission sought to save something from the wreckage. In the Chattanooga case, therefore, that body ordered the railways to cease certain discriminations in favor of Nashville as against Chattanooga, consideration being given not merely to the question of similarity of conditions but also to the question as to whether the discriminations practiced were reasonable. But the reversal of the Commission by the Supreme Court in 1901 in this case [1] showed clearly that all endeavors to accomplish public good under Section 4 were useless; if railway self-interest justified the establishment of discriminatory rates or if local pressure for advantage constituted an adequate legal basis for similar action, then no ground remained upon which the Commission might make a stand. The Long-and-Short-Haul clause was as dead as though Congress had repealed it. Indeed, in the whole Act there remained as a memento not even a ragged stump of the "teeth" with which Congress had intended to equip it. Mute witness to the statement that no man knows what the law is until the courts, in their wisdom, have indicated what they believe the legislature meant or should have said.

COMMISSION CONTINUES WITHOUT POWER

The influence of the successive denials of power to act in an effective manner could not but have a marked effect upon the work of the Commission. Comparatively slight use had been made of its services even during those early years when its power had been little challenged, because of its newness, its physical remoteness from many, and the lack of familiarity of shippers generally with procedure. With the denial of authority to control in a positive manner all

[1] *East Tennessee, Virginia and Georgia Railway Company* v. *Interstate Commerce Commission,* 181 U. S. 1.

incentive to appeal was gone—better endure or compromise than to incur the enmity of the carrier to no purpose. Therefore a decline in the business of the Commission ensued, going so far as to leave that body little beyond the conduct of general investigations and the compilation of statistical data.

RESULTS OF THE ACT TO REGULATE COMMERCE

To dismiss thus the Act to Regulate Commerce and the work of the Commission is, however, to fail to recognize certain definite and positive gains to the public which resulted from this first attempt to control interstate commerce. Publicity of rates had been secured, even though the published tariffs too often served but as the "take-off" for the individual bargain between railway and shipper. Much discrimination had been eliminated, particularly as among places, the ready conformance of Trunk Line carriers to the requests of the Commission in this particular as well as partial response of roads in other sections of the country relieving many points of an onerous burden previously borne. Too, the consolidation and simplification of freight classifications were distinctly furthered by the law and the work of the Commission; the wide diversity which had existed in this particular had been a fruitful source of uncertainty, confusion, and complaint. Moreover, valuable statistical data covering every important phase of railway operations were gathered during the years following 1887 and prior to the effective amendment of the Act. And this service was the more real because, prior to the organization of the Commission, there was no reliable central source of such information and so wide a divergence in methods of compilation existed among the various railways that comparisons were of little worth. Further, the experiment in regulation had encouraged a more careful study of railway matters and thereby assisted in the development of a more comprehensive grasp of the problems in the field. And last

but not least, experience under the Act showed, as nothing else could have done, how legislation, intended to regulate effectively carrier-shipper and carrier-government relationships, should *not* be phrased if it were to be interpreted by the courts as it was intended by Congress.

To accomplish the end which Congress had in view when the Act to Regulate Commerce was passed in 1887, certain definite and positive changes were needed. It was essential that the Commission have the right to prescribe rates, the power to deal effectively with discriminations of various types, and the authority to compel immediate obedience to its orders. It was also necessary that the scope of judicial review in the examination of Commission orders be limited. In laws enacted by Congress from 1903 to 1910 such strengthening legislation was to come but, until then, the federal regulation was a matter of form rather than of fact.

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XXXI

ESTABLISHMENT OF EFFECTIVE FEDERAL REGULATION

Demand for positive control revived. The problem of personal discrimination. Financial importance of rebating. The Elkins Act: provisions and operation. Railway regulation a "paramount issue." The Hepburn Act: scope; powers of the Commission; the Commodities clause; judicial review; miscellaneous provisions. Increased activity of the Commission. Uniform system of railway accounting. Commission's decision now final on matters of fact. Commodities clause: early application and later results. Demand for further legislation. The Mann-Elkins Act: rate suspension; rehabilitation of Section 4; the Commerce Court. Minor provisions.

As the preceding chapter indicates, the decisions of the Supreme Court, particularly those which denied the power of the Interstate Commerce Commission to prescribe rates and to eliminate violations of the long-and-short-haul principle, left that administrative agency little beyond observation and recommendation. Despite the need of the rehabilitation of the Act to Regulate Commerce, the absorption of public interest by other matters such as war, returning business prosperity, and "trusts," coupled with a considerable influence exerted by the railways in Congress, resulted not only in failure to take definite action but even in the almost complete absence of serious consideration of the problem. Beginning about 1897, however, certain definite influences began to operate which were destined within a decade to result in positive and effective action.

DEMAND FOR POSITIVE CONTROL REVIVED

One of the more important of these factors was the movement toward railway consolidation which had its beginnings in the recovery from the depression following 1893. This

movement led, within a brief time, to the grouping of railways throughout the country into a comparatively small number of ownership systems, dominated by powerful individuals or banking groups and centered largely in New York. Furthermore, such close relationships were established among various of these groups as to accomplish a large measure of monopolistic control of transportation facilities in many sections. This movement aroused public protest upon two principal grounds. It was urged that the unification of properties tended to imperil the commercial interests of many centers which were, by such unification, either reduced from the high rank of terminal points to mere important way stations, or compelled to share the affections of a particular carrier with other points to which access had been gained by consolidation. Then, too, it was contended that the consolidation of properties represented a clear and positive movement in the direction of monopoly. Objection to this tendency was voiced upon two grounds: it was felt that such control would result in the exploitation of the public directly through higher rates and less satisfactory service and it was feared, because of the intimate relationship which seemed to have developed between important railway interests and certain of the great industrial combinations which had recently gained prominence, that the exploitation of the public by these industrial giants would be abetted.

A second impelling force which operated during these years in such way as to hasten effective regulation, was the upward movement of freight rates. Prior to the close of the nineteenth century, the movement of charges had been steadily downward and even the railways themselves seemed to feel that that movement was likely to continue. However, with the general change in conditions which characterized the early years of the new century, a reversal of this tendency appeared, to the great concern of the public. One cause of this reversal was the considerable modification of the force of competition which resulted from the consolida-

tion of properties and the close cooperation of large groups. A more important cause lay in the upward movement of the price level which began in the late nineties and continued, with only certain minor and temporary recessions, for almost a quarter of a century. This movement affected the railways through an increase in the cost of both materials and labor, and was regarded by the carriers as a clear justification for an increase in rates upon traffic as a whole. Then, too, it was not long until certain of the railways operating in sections of heavy traffic found themselves no longer in a position to enjoy the results of the law of increasing return. Instead, they faced its converse, the law of increasing costs: the plant had failed to expand, *pari passu,* with the rapid growth of business.

PROBLEM OF PERSONAL DISCRIMINATION

A third factor, and one of great significance in arousing public opinion upon the matter of effective regulation, was the rapidly growing importance—and threat—of personal discrimination. True, personal discrimination was prohibited under the Act of 1887, but the provisions of the statute with respect to this particular problem made impossible the establishment of any effective control of the situation. Indeed, during a period of almost 15 years the total number of convictions had scarcely exceeded that figure. That this section which had proved wholly inadequate in the control of personal discrimination prior to the period of "big business" should fail miserably in the face of demands made for concessions by the great industrial combinations which had so recently come into being, was inevitable. Because of their magnitude these powerful industrial units, when not *offered* concessions by ambitious traffic representatives seeking to increase tonnage by undercutting rival lines, were able to *force* from unwilling carriers the enjoyment of lower rates and better service than were accorded to such independent competitors as remained.

Among the outstanding recipients of favors from the railways during this period were the "Beef Trust," the "Sugar Trust," the Standard Oil Company, and the International Harvester Company.

Although existing legislation was insufficient to eliminate personal favoritism, it exerted sufficient pressure upon the railways to lead them to substitute for the *obvious* rebate, or a lower than published rate, an almost innumerable array of more devious though equally effective methods. To endeavor to enumerate all of the various schemes utilized would be too great a task, but some of the more important and ingenious of them deserve mention. For those concerns owning railway equipment, such as refrigerator and tank cars, excessive compensation for its use by the railways represented an excellent but covert method of giving concessions. To corporations owning spur lines and tap lines, excessive proportions of the total rate charged were often assigned these facilities for the "important service rendered by them." In other instances, shippers were encouraged to lodge excessive damage claims against the carrier with the assurance that these would be handled by a none too curious adjuster. Many corporations that ostensibly paid the standard rate were "taken care of" through the payment of higher than market prices for materials sold to the railways. In certain instances special consideration was afforded favored shippers in the matter of the distribution of equipment during periods of car shortage, likewise in permitting the use of equipment for storage purposes without collection of the usual demurrage charge. "Midnight tariffs" were also generously employed, favored patrons being informed of the proposed temporary rate a sufficient time in advance to enable them to ship large quantities subject to it, but the very brevity of the life of the tariff would preclude a competitor, who enjoyed no helpful "tips," from availing himself of the opportunity, even though he learned of it at all. But perhaps one of the most ingenious methods employed was that illustrated so well in the case of the ship-

ment of oil into the South by the Standard Oil Company. Because of its knowledge of a special tariff, publicly filed, from a point near its refinery at Whiting to an important point in the South, that great corporation was able to dominate in a considerable measure the oil traffic of that section. Surely no more positive evidence of the ingenuity of the human mind is discoverable than appears in the success of the railways and certain shippers in violating the spirit of the law which prohibited discrimination and yet avoiding the consequences of that violation!

FINANCIAL IMPORTANCE OF REBATING

The financial magnitude of the innumerable concessions made by the railways to shippers cannot be estimated accurately because of the extent to which these favors have been buried beyond all hope of discovery except through a painstaking examination of records. Even such an examination would tell but a portion of the story. An investigation by the state of Wisconsin, begun in 1903, disclosed the fact that the Chicago and North Western had allowed direct rebates amounting to about $7,000,000 during some six years previous to the institution of the investigation, while other important lines are known to have lost from $500,000 upwards during a single year. If to these figures be added the sums lost to the railways by concealed rebates, an enormous total results. The reason for growing antagonism to this practice on the part of both the railways and unfavored shippers therefore becomes clear. Furthermore, no accurate measure of the part played by special favors during this period in the upbuilding of certain great industrial units which came to dominate in their particular fields, can ever be had. It was, however, this threat of industrial monopoly, added to the uncertainty of the individual shipper as to what handicap the morrow might place upon him in comparison with his competitor, that finally so aroused public opinion as to make action purposed to

eliminate discrimination, inevitable. Such action came in 1903 in the Elkins Act which dealt solely with rebating.

PROVISIONS OF THE ELKINS ACT

The public mind had become thoroughly aroused to the dangers inherent in this practice, yet it is improbable that popular demand alone would have succeeded at this time in securing effective legislation—the influence of the railway in Congress was potent. However, in this instance, public antagonism and the demand for remedial action was enthusiastically seconded by the railways themselves. Not only did the carriers find themselves suffering heavy losses in revenues but they discovered that, as time passed, the situation became worse rather than better: in competitive territory the pressure of important corporations resulted in the progressive sapping of revenues. In short, the railways found themselves much in the position of the man who, after grasping a live wire, shouted to a bystander, "Please, mister, help me let go!" In commenting upon the situation one writer says, "The ease and decorum with which this legislation was passed is, in itself, eloquent testimony to the organized influence of the railroads over Congress. . . . No opposition whatever appeared. Nor was there much debate. The machinery of legislation moved expeditiously and almost without noise to the desired end." [1]

The Elkins Act was but an amendment to that portion of the Act to Regulate Commerce which dealt with personal discrimination. It contained five provisions of significance, the first of these being that the railway company itself, the actual beneficiary in part of the practice, was made amenable to the Act as well as the agents of that railway. In the second place, the published tariff was made binding and any variation from it constituted a violation of the Act. It was, therefore, no longer necessary to prove discrimination among shippers—mere departure from the published

[1] Ripley, W. Z., *Railroads: Rates and Regulation*, p. 492.

rate was sufficient to constitute a violation. In the third place, the recipient of the rebate was made equally liable with the carrier which extended a concession, a provision which was not only fair but necessary if the carriers were to secure measurable relief from pressure exerted by shippers for special consideration. Then, too, the Act legalized the issuance of injunctions by any Federal court to restrain carriers from departing from published tariffs or from indulging in any other type of discrimination banned by law. And, finally, because it was felt that conviction could thereby be more easily secured, the imprisonment feature was removed from the penalty clause of the Act and it was provided that punishment should be by fine only.

OPERATION OF THE ELKINS ACT

During the first two years following the passage of the Elkins Act little seems to have been done, but, beginning in 1905 and extending through the next several years, many prosecutions were undertaken. The results of these prosecutions were, from a public and governmental standpoint, highly satisfying; many convictions were secured and further indulgence in personal discrimination was thereby discouraged. Among the concerns implicated were many of the old-time offenders against which public antagonism ran particularly high; Standard Oil, the "Beef Trust," and the "Sugar Trust" were among the more prominent. From the first-named the government collected almost $600,000 in a period of about 18 months, while from the last fines aggregating about half that sum were collected. During the five years immediately following the passage of the Act, the activities of the government reduced the evil of personal discrimination to relatively small proportions, though such discrimination, disguised somewhat more carefully, remained a significant evil for many years and even yet has not been wholly eliminated. However, federal action in this field has proved as effective as legislation is likely to be.

RAILWAY REGULATION A "PARAMOUNT ISSUE"

Despite the fact that the Elkins Act accomplished much in the elimination of a particular abuse, it was no more than an opening gun in the battle for the reestablishment of that effective control of railways which Congress had seemingly intended to give the Interstate Commerce Commission in 1887. As early as 1894 efforts were made to strengthen the Act, but public sentiment had not sufficiently crystallized at that time, nor during the 10 years following, to make the enactment of necessary measures possible. This delay, as suggested before, has a dual explanation: not only was public opinion centered upon currency problems, war, island possessions, and trusts, but the railways were also effectively organized to influence public opinion, and occupied a strategic position in Congress. In 1904, however, President Roosevelt, in his message to Congress, made the enactment of further regulatory legislation, "a paramount issue." Under this impetus the House of Representatives passed the Esch-Townsend Bill by an overwhelming majority, but the Senate, in which the railways were strongly entrenched, delayed action pending an investigation. The facts brought out by this investigation added fuel to the fire of public indignation which had already forced the widespread enactment of state regulatory laws. This fire was fanned to white heat by the exposure of the details of a thoroughgoing and minutely planned scheme to influence public opinion by every means from bogus conventions to garbled news. To these favoring forces was further added executive pressure. In consequence, the Hepburn Bill was passed by the House with but seven dissenting votes. There remained, however, that hitherto insurmountable barrier, the Senate, but "at the psychological moment came the general breakdown and congestion of railroad service all over the country; the insurance investigation in New York; the Pennsylvania Railroad coal car scandal; the Atchison rebate disclosures, with 'barefaced disregard of the law,' besmirch-

ing a member of the President's cabinet."[1] After only slight modifications had been made in conference, the Hepburn bill was accepted by the Senate with but three dissenting votes and effective federal regulation became a fact.

IMPORTANT POWERS GIVEN THE COMMISSION

The Hepburn Act in both phraseology and content shows clearly the extent to which the losses suffered by the Commission in the interpretation of the Act of 1887, together with later experience, had been capitalized. In the first place, the scope of the Act was materially extended; private car lines, express companies, sleeping car companies, pipelines, and all terminal and switching properties were added to the list of those agencies made subject to the control of the Interstate Commerce Commission. The explanation for this extension is to be found in problems which had developed in the intervening years. Private car lines and terminal and switching properties were included largely because of the part played by them in the furtherance of personal discrimination, express and sleeping car companies because of exorbitant and oftentimes discriminatory charges, and pipe-lines in an effort to strike at one of the main sources of monopoly control by the Standard Oil Company in its field.

But far more important than the broadened scope of the Act were certain new powers granted. The first of these and the one of outstanding immediate importance gave the Interstate Commerce Commission, in language so clear and unmistakable that a conservative court could not misunderstand, the right to prescribe just and reasonable maximum rates and to order conformity by the carriers thereto. Such rates were to become effective after 30 days and were to remain in force for a period of 2 years except as suspended, modified, or set aside by a court of competent jurisdiction. Furthermore, the Commission was empowered to make an

[1] Ripley, W. Z., *Railroads: Rates and Regulation*, p. 499.

apportionment of joint rates when carriers were unable to agree upon their division, to establish through routes, and to fix reasonable charges for services or property provided by shippers.

A second important provision was that which permitted the Interstate Commerce Commission to prescribe a uniform system of accounting for all agencies subject to the Act, with full publicity. Although progress had been made under the provisions of the Act of 1887, the Commission was compelled to rely upon the cooperation of the railways rather than being in a position to demand conformance to its suggestions. For various reasons the keeping of accounts by the railways according to a uniform and prescribed system is desirable. To the railway it assures more honest and often more efficient operation; to the investor a far more accurate record of financial operations, particularly with respect to capital expenditures and the outlay for maintenance, as well as total revenues and expenses; to the public, greater equality of treatment and a sounder factual basis for the determination of rates; and to labor, a clearer and more accurate knowledge of the industry upon which to base, in part, its demands in matters of wages and working conditions.

THE "COMMODITIES CLAUSE"

The Hepburn Act, aside from the powers noted, contained certain prohibitions and restrictions affecting the railways. Of these perhaps the most important was the so-called Commodities clause. Purposed to eliminate a participation of the railways in the mining and marketing of anthracite coal, which had subjected the independent operator to an almost impossible handicap, it provided that "After May 1, 1908, it shall be unlawful for any railroad company to transport from any state . . . . to any other state . . . . any article or commodity other than timber produced by it or under its authority or which it may own in whole or in part or in which it may have any interest, direct or in-

direct, except such articles or commodities as may be necessary and intended for its use in the conduct of its business as a common carrier." Under this provision it was hoped that an effective separation of certain railways and coal properties could be secured to the benefit of both the independent operator and the public, the exception of timber products being made at the suggestion of western congressmen and in the interest of the Hill lines particularly, against which no complaint had been made by producer or consumer.

OTHER PROHIBITIONS

A second prohibition dealt with the problem of the scope of judicial review. As might be anticipated, the railways urged strongly the broad review of all cases appealed to the courts from the Commission while the public, on the other hand, desired positive Commission control with a minimum of judicial interference. The latter group desired to make the decisions of the Commission final upon matters of fact, thereby leaving to the courts merely the consideration of questions of law. It was exceedingly doubtful, however, as to whether Congress could limit or define the power of a coordinate branch of government. As a result of the controversy between those favoring and those opposing broad review, what was intended as a compromise clause was included which specifically recognized the power of the circuit courts to "enjoin, set aside, annul or suspend" orders of the Commission. However, such action could not be taken unless five days' notice had been given the Commission to enable it to formulate its case, and such hearings must be held before three federal judges instead of one. Although this portion of the Act gave the Commission certain protection and although the automatic application after 30 days, except as the courts might interfere, of orders prescribing maximum rates placed the burden of proof upon the carriers in all actions instituted, it was not until the Supreme Court acted in the Illinois Central Coal Car Distribution

case that the problem of review was settled to the public advantage.

Besides a third prohibition, that upon the issuance of free transportation, or "passes," to cover interstate passenger movements except to named groups—an evil which most of the states had already met with respect to intrastate movements, certain other features of the Act are deserving of mention. In an effort to strengthen the arm of the government in dealing with personal discrimination, the imprisonment penalty was restored and made applicable to shipper and official alike. It was further provided that any shipper who has received rebates in any form from a carrier must, upon conviction, forfeit to the Federal Government a sum equal to three times the amount of the rebates enjoyed during a six-year period prior to the institution of action. To facilitate recovery by the shipper in the case of the loss or damage of goods moving over two or more lines, the so-called Carmack Amendment was added. This declared that the shipper might, upon proof of loss or damage, recover the full amount of the injury from the initial carrier. This carrier was permitted to recover, in turn, from others participating in the through shipment to the extent to which each was liable. To assist the Interstate Commerce Commission in handling the increased burden of work placed upon it by the Act, the membership of that body was increased from five to seven, not more than four of whom should be of the same political party, and the term of office was increased from six to seven years. The annual salary was fixed at $10,000.

INCREASED ACTIVITY OF THE COMMISSION

As is often true, a brief period was necessary to acquaint the shippers with the possibilities of this new legislation. Once understood, however, an immediate and conspicuous result was the renewed and tremendously increased activity of the Interstate Commerce Commission. Realizing the

helplessness of that body for many years under the Act of 1887, the number of formal complaints had been very small, even after the passage of the Elkins Act, while the number of informal complaints was but little larger. In fact, in 1905 there were only 65 of the former and 568 of the latter, yet two years later the numbers had risen to 415 and 5,516 respectively. From that point forward, informal complaints remained practically stationary while those of a formal character dwindled as the accumulation of grievances was reduced. Great activity was also shown by the Commission in handling loss and damage claims filed by shippers, approximately $570,000 being awarded during the first three years under the Act, on the basis of some 8,755 claims filed. Furthermore, the Commission influenced the carriers in reducing the number of tariffs filed to less than half within five years, thus greatly simplifying the determination of rates.

In the course of its activities, the Commission was able to rectify a great many wrongful practices and abuses with which it had lacked the power to deal effectively prior to the passage of the Hepburn Act. Among these one of the most important was the improper routing of shipments, with a resultant increase in cost measured in terms of time or money, perhaps both. Such misrouting was peculiarly common in cases where, by so doing, a carrier was enabled to earn the entire charge or found it possible to share more generously in the division of a joint rate. Another situation with which the Commission dealt involved the correction of numerous individual rates of an unreasonable character which were called to its attention by shippers, and the substitution therefor of reasonable tariffs. The exclusion of certain carriers from participation in through shipments also gave rise to emphatic protests on the part of both the carrier against which discrimination was practiced and those shippers which it served. The most conspicuous instances of this abuse involved discrimination by rail lines against certain water carriers, but it is undoubted

that the same practice was sometimes followed by railways in dealing with other types of carriers, even recalcitrant railways. The Commission was also able, by means of the Elkins Act as amended, to continue its progressive uprooting of the practice of rebating. For these and other positive services rendered by the Commission in behalf of the shipper during its first few years of effective work, the business interests of the country were deeply indebted.

A UNIFORM SYSTEM OF ACCOUNTING ESTABLISHED

An important step taken by the Interstate Commerce Commission upon the basis of power conferred by the new law related to the establishment of a uniform system of accounting and statistics for the various transportation agencies subject to its jurisdiction. Immediately upon the passage of the Act, the Commission concerned itself with the development of a partial system of accounts, with the result that three classifications were completed and made effective July 1, 1907, for all steam roads. These classifications, governing entries relative to capital expenditures for roadway and equipment, to operating revenues, and to operating expenses, were basic in railway accounting and upon these the Commission built its complete system, which was made effective in 1915. At that later time the Commission also prescribed accounts for other carriers, express, pipe-line, sleeping car, telephone and telegraph companies. Such a prescription represented a tremendous step toward uniformity and accuracy, yet the Commission has since been faced constantly by two major obstacles to the attainment of that goal. One of these obstacles to uniformity and accuracy is the varied interpretation given to accounts by officers and employees of the different carriers, but it has been overcome slowly but steadily by supplementing the accounts with interpretations purposed to meet and to obviate major discrepancies. The other obstacle is the deliberate violation of rules and principles laid down by the Commission; this wilfulness,

though not frequently evident in an aggravated form, has proved harder to meet. Such misstatements are normally made either with respect to property accounts or with respect to operating expenses. Replacement costs chargeable to the latter are too often carried to the former and additions and betterments properly chargeable to the former have been included frequently in the latter, with a resultant under- or overstatement of operating expenses and a like distortion of the property accounts.

Other difficulties have also been met in enforcing an accurate handling of these groups of accounts, as well as in avoiding confusions between operating and non-operating revenue accounts, and thus far the funds at the disposal of the Commission have not been sufficient to permit the employment of a staff of inspectors adequate to eliminate such abuses. The attitude of the Commission was, for a time, somewhat lenient with respect to departures from the prescribed systems of accounts promulgated by it, but it has grown increasingly strict. In 1914, after indicating its purpose to hold the chief accounting officer of a company strictly to account for statements submitted to the Commission over his signature, it declared with respect to the accounting vagaries of the Puget Sound Railway that, "we shall not hesitate to call to account with even greater severity anyone above the accounting officer in authority who may share in the responsibility for any of the violations of the accounting rules and regulations which have been prescribed for the use of the carriers that are subject to the Act." [1] Although this phase of the Commission's work has been one of the least spectacular, no careful student of railway affairs can doubt but that it has been of great value.

ACCEPTANCE OF COMMISSION'S DECISIONS

Another development of importance to the work of the Commission at this time, and one ascribable in part to

[1] 29 I. C. C. 508.

the Hepburn Act, was the acceptance as final by the courts of Commission findings concerning matters of fact. As stated in the preceding chapter, the early policy of the courts had been to reopen all appeals from the Commission and to examine the findings of that body not only with respect to questions of law, but even with respect to matters of fact. The introduction of additional evidence relative to matters of fact was also permitted. This policy seriously crippled the work of the Commission and all friends of effective regulation desired a reversal of judicial policy, but the difficulty of establishing a limitation by statutory enactment seemed almost insuperable. To the aid of these champions of narrow review, however, came the United States Supreme Court itself at this particular juncture. Recognizing in the Social Circle case the evils of the situation growing out of broad review and the evident purpose of the Act that all material facts should be disclosed in the original proceedings before the Commission, the Supreme Court took a positive position shortly following the passage of the Hepburn Act. In 1906, in a case in which the factual basis of the Commission's action was challenged, the court said, "And the findings of the Commission are made by law *prima facie* true. This court has ascribed to them the strength due to the judgments of a tribunal appointed by law and informed by experience. . . . And in any special case of conflicting evidence, a probative force must be attributed to the findings of the Commission, which, in addition to 'knowledge of conditions, of environment, and of transportation relations,' has had the witnesses before it and has been able to judge of them and their manner of testifying. In the case at bar, these considerations are reinforced by a concurrent judgment of the circuit court." [1] Although the Commission was upheld in this case, the mention of a concurrent judgment by the circuit court indicates that a measure of reliance was still placed in judicial findings

[1] *Illinois Central Railroad Company* v. *Interstate Commerce Commission*, 206 U. S. 442.

relative to questions of fact. However, in 1910, in the so-called Illinois Central Coal Car Distribution case,[1] the Supreme Court accepted the finality of Commission findings in matters of fact in the following words, which follow a statement of the general function of the judiciary with respect to statutory enactments: "Plain as it is that the powers just stated are of the essence of judicial authority and which, therefore, may not be curtailed and whose discharge may not be by us in a proper case avoided, it is equally plain that such perennial powers lend no support whatever to the proposition that we may, under the guise of exerting judicial power, usurp merely administrative functions by setting aside a lawful administrative order upon our conception as to whether the administrative power has been wisely exercised. . . . Power to make the order, and not the mere expediency or wisdom of having made it, is the question." In the years intervening between that decision and the present, the Supreme Court, despite certain slight modifications and exceptions from time to time, has maintained fundamentally the position laid down in this last decision. In consequence, the Commission's findings of fact are now seldom challenged upon appeal.

EARLY APPLICATION OF THE COMMODITIES CLAUSE

To complete the discussion of the operation of the Act passed in 1906 there remains only a consideration of the enforcement of the so-called Commodities clause. The purpose of the clause was clear, but the situation with which it dealt was a complex one from a legal standpoint. In certain instances the connection between railways and coal companies took the form of the direct ownership of mines, in others the ownership by the railways of the stock of operating coal companies. In the first case to come before the United States Supreme Court under this portion of the

[1] *Interstate Commerce Commission* v. *Illinois Central Railroad Co.*, 215 U. S. 452.

Act, involving the ownership by the Delaware and Hudson Railroad of stock in a coal company, the output of which moved over the carrier's line, the constitutionality of the Act was upheld, but its effectiveness crippled, indeed, practically destroyed. The court, in conformity with prior decisions to the effect that the ownership of stock in a corporation did not constitute legal ownership of the property of the company, declared that this railway, through possession of the stock of a coal company, possessed no interest in the coal which would make it subject to the Commodities clause.[1] But in this connection the court even went further by pointing out that, even though a railway were the legal owner of the coal at the mouth of the mine, it might escape the application of the Act by selling the coal at that point, before transportation began. As Dixon declares, "No more helpful guidance could have been offered by expert counsel to those companies that were seeking a way around the law."

Upon the basis of this decision the relationship between the "anthracite roads" and coal properties owned or controlled by them was so readjusted as to place the railways, presumably, beyond the scope of the Act. The most complicated arrangement was that of the Lehigh Valley Railroad which, in view of a later decision that identified stock ownership with a material interest in the property of the controlled corporation, found it necessary to organize the Lehigh Valley Coal Sales Company because of its inability to distribute pro rata among its stockholders the stock in its subsidiary coal company, that stock being pledged under a general mortgage. The stock of this coal sales company was distributed among the stockholders of the Lehigh Valley Railroad Company upon a pro rata basis and the coal mined by the coal company was sold at the mouth of the mine to the coal sales company under a contract between the two. A peculiar feature of this agreement was that it permitted cancelation by the carrier, should the interest of the railroad company and the coal sales company later be-

[1] *United States* v. *Delaware and Hudson Company*, 213 U. S. 366.

come at all divergent through the separate ownership of the stock of the two. Strange and wonderful, indeed, are the means devised to escape the operations of the law!

LEGALISTIC APPLICATION OF CLAUSE ABANDONED

However, much corporate ingenuity seems to have been wasted since, in the Lehigh Valley case,[1] decided in 1911, and the Lackawanna case,[2] decided in 1915, the Supreme Court held that the drawing of mere corporate lines could not be permitted to obscure a real identity of interest: a divorcement of railway and coal properties in spirit as well as in letter was ordered. Later, in 1920, the Supreme Court took a yet more advanced position in applying the Commodities clause to the Reading Company. Here the coal properties were owned by a holding company, the Reading Company, through stock ownership. The Reading Company controlled in similar manner the Philadelphia and Reading Railway Company. Further complicating the situation, the Railway Company dominated the Central Railroad of New Jersey which, in turn, owned certain coal properties. Although the position of the Central of New Jersey appeared somewhat weak relative to its coal properties, the application of the letter of the law would seem to make the position of the Reading Company practically impregnable. However, the court applied the law upon the basis of the broad purpose which prompted its enactment by Congress and therefore declared that the combination of railway and coal companies through even such a device as a holding company must be terminated since it represented a violation of the Commodities clause.[3] As a result of this decision there seems to be little doubt but that a fundamental readjustment must be made between railways and producing cor-

[1] *United States* v. *Lehigh Valley Railroad Company*, 220 U. S. 257.

[2] *United States* v. *Delaware, Lackawanna and Western Railroad Company*, 238 U. S. 516.

[3] *United States* v. *Reading Company*, 253 U. S. 26.

porations, particularly coal properties. The nature of this readjustment and the character of results from a public standpoint are problematical, but the readiness of the courts, as shown in these later decisions, to disregard the form for the reality and thus to act upon an economic rather than a legalistic basis, represents a distinct advance and holds promise for the future in this as well as in other fields.

DEMAND FOR FURTHER LEGISLATION

Although the attitude of the railways for a brief period following the passage of the Hepburn Act was conciliatory, a change became evident by the latter part of 1908. Instead of accepting the findings of the Commission without question, each phase of the law was subjected to serious test. In consequence of this reversal in attitude, an insistent demand for further and more drastic legislation appeared. This demand was strengthened by several other factors. In the first place, there were several conspicuous decisions by the courts which were distinctly favorable to the railways, among these being the Delaware and Hudson decision already mentioned, and a decision relative to rebating which relieved the Standard Oil Company of heavy penalties imposed upon it by a lower court. Such decisions tended both to encourage the railways and to irritate public opinion. There was also at this time a change in the financial situation of the railways which seemed to promise a general rate increase, and this roused sharp opposition on the part of the public, despite the fact that the railways had previously taken no action to cover the increased costs resulting from a rising price level. Then, too, there was before the Interstate Commerce Commission a group of cases involving the Transcontinental rate structure, with which the Commission felt that it lacked power to deal effectively under existing legislation. Finally, the political situation by 1910 was of such character as to make action likely. Although Congress was nominally Republican, the "insurgent" group within the

ranks was sufficiently strong to compel the Administration to take positive action, under threat of wrecking the entire Administration program by a combination with the strong Democratic minority. In the light of such conditions, economic and political, it was certain that additional legislation would be enacted, further curbing railway activities.

THE MANN-ELKINS ACT

In this movement the Administration took the initiative and, in fulfilment of party pledges made in the platform of 1908, offered to Congress early in 1910 a specific program in the form of a bill which was introduced into both houses of Congress. The main features of this bill were three: provision for the establishment of a commerce court; the authorization of traffic agreements among the carriers, subject to the approval of the Commission; and the bestowal of power upon that body to suspend proposed rate increases pending investigation by it as to their reasonableness. This program roused the active opposition of the anti-railway members within the Republican ranks and these, with hearty Democratic cooperation, succeeded in changing the original proposal well-nigh beyond recognition. The authorization of traffic agreements was eliminated without ceremony, the period during which rates might be suspended was extended, and the commerce court plan was modified, particularly through the transfer of the power to select members of the court from the President to the Chief Justice of the Supreme Court. After much jockeying and many modifications in principle and in detail, the Mann-Elkins Act was passed and received the presidential signature in June, 1910.

POWER TO SUSPEND RATES

One of the three outstanding features of the Act was that grant of authority to the Interstate Commerce Commission to suspend proposed increases in rates pending an investiga-

tion as to their reasonableness. Although it had long been evident that such a provision was needed to give full protection to the shipping public, this change had been successfully blocked by the carriers. However, the impending general increases in rates caused the appearance of a sufficiently insistent demand for protective action to accomplish the inclusion of this provision. The railways had contended that to delay the application of such increases as were later shown to be justified would result, at times, in great financial hardship to them. On the other hand, to enforce the increased rate pending investigation as to its reasonable character, threw the burden upon the public in case the increase was found to be unreasonable in whole or in part. Indeed, even the right of the shipper to recover excess sums paid under such conditions gave no protection to the public for, in the meantime, the excessive charge would have been passed on to the consumer in the form of increased prices, and repayment to shipper or consignee would represent generally a return to which he was not entitled. Furthermore, the obstruction of rate increases by injunction was inadequate and confusing, as shown by action taken during the early months of 1910 to block the filing and collection of increased rates, prior to the passage of the Mann-Elkins Act.

That the Commission might have adequate opportunity for investigation it was authorized by that Act to suspend for a period not to exceed 120 days beyond the time when the proposed change should otherwise become effective, any new rate or fare, or classification or practice affecting rates or fares, acting either upon its own initiative or upon complaint. The further privilege was given of suspending such change for an additional period not to exceed six months, if the investigation had not been completed within the time available under the first order of suspension. It was furthermore provided in this connection that, in the case of all advances in rates after January 1, 1910, the burden of proof should rest upon the carriers and that no such increase

should be made except as shown by them to be just and reasonable.

REHABILITATION OF THE FOURTH SECTION

A second important change made in the Act which added materially to the power of the Commission was an amendment of Section 4 purposed to restore to the Commission that effective control over long-and-short-haul violations which Congress had sought to bestow almost 25 years earlier. Although frequent protests against the practice of charging a greater sum for a shorter haul than for a longer haul, over the same line and in the same direction, had arisen in the South, the same militant attitude was not taken by the public in this section as in the West. There the policy of rate-making to points in the intermediate territory had long put so great a burden upon the intermountain area that the situation had called forth emphatic protests, even from the Commission, in every case involving the rate structure of that region. However, the Commission felt that it lacked power to deal with the situation in an effective way though it did, as the occasion arose, so act as to lessen the handicap under which the territory, served by such points as Spokane and Reno, labored. Despite protests which date back to the early nineties, the railways had refused to modify the general policy of rate-making and in Congress their position was strengthened by the support of the eastern portion of the country which was the gainer in western markets as the result of the existing adjustment. With three cases from the intermediate territory before the Commission for adjudication and an insistent demand on the part of the public for the bestowal of sufficient power upon the Commission to handle them adequately, action could be delayed no longer.

To preclude future differences in the interpretation of that portion of the Act, there was added to the phrase "over the same line" the words "or route," thus making it im-

possible for any court to confuse the situation as had been done following the Osborne case. A second and vital change in the Act was the entire elimination of the phrase "under substantially similar circumstances and conditions"; the greater charge for the shorter distance was expressly prohibited, "provided, however, that upon application to the Interstate Commerce Commission, such common carrier may in special cases, after investigation, be authorized by the Commission to charge less for longer than for shorter distances for the transportation of passengers or property." By this change was eliminated all possibility of such disagreement in interpretation as rendered the original Act wholly ineffective after the decisions handed down by the United States Supreme Court in the Alabama Midland and Chattanooga cases. Two other changes were also made in this section but both were of a relatively minor character. The first of these merely gave legal status to a policy that the Commission had long followed, declaring that no through rate should be greater "than the aggregate of the intermediate rates subject to the provisions of this Act," while the second provided that "whenever a carrier by railroad shall, in competition with a water route or routes, reduce the rates. . . . of freight to or from competitive points, it shall not be permitted to increase such rates unless, after hearing by the Interstate Commerce Commission, it shall be found that such proposed increase rests upon changed conditions other than the elimination of water competition." This restriction was based upon a provision of the California State Constitution and was designed to prevent the elimination of water competition by the railroads through cut-throat activities and the immediate restoration of the old rates or the imposition of higher ones.

CREATION OF THE COMMERCE COURT

A third important feature of the Act, but one intended to supplement existing machinery for the regulation of car-

riers rather than to extend the powers of the Commission, was that which provided for the creation of the Commerce Court. The purpose of this court was twofold. In the first place it was designed to expedite the handling of cases appealed from the Commission, all such appeals being carried to this court and thence directly to the Supreme Court instead of being compelled to await their turn upon the docket of one or another of the circuit courts to which appeal had been made. A second, and perhaps more significant, purpose had to do with the character of the reviewing board. It was felt that several judges, skilled in the handling of cases in this field, would be far more certain to arrive at sound conclusions than a single representative of the court, a master, to whom the taking of testimony on such appeal cases was normally delegated by the circuit judges. It was also felt that the specialized experience of those serving upon the court would make for a more intelligent handling of cases than could otherwise be had. Under the Act this new body was to be composed of five judges, each serving for five years, who were to be designated by the Chief Justice of the Supreme Court from among the circuit judges of the United States, except that in the first instance the court was to be composed of five additional circuit judges appointed by the President to serve on this court one, two, three, four, and five years respectively as he should indicate. It was further provided that no judge should be designated for a second term except after an interval of one year after the expiration of the period of his previous appointment. Though the purpose of this rotation was good, in that it was designed to prevent overspecialization and consequent narrowness of vision, it must have resulted badly in practice through a period of years because it tended to defeat one of the principal purposes of the Act—the provision of an expert body to hear cases upon appeal. The jurisdiction of this body extended over four kinds of cases: those involving the enforcement of any Commission order other than for the payment of money; those brought to enjoin, set aside, annul,

or suspend, any such order; all appeals under the Elkins Amendment of 1903 respecting rebates or departures from published tariffs; and all proceedings concerning the enforcement of the orders of the Commission with respect to publicity of accounts, the movement of traffic, and the provision of proper facilities.

MINOR PROVISIONS OF THE NEW LEGISLATION

Certain minor powers were accorded the Commission by the Act. It was authorized to institute inquiries upon its own motion, a power which it had often exercised previously but one that it was thought best to bestow in unmistakable terms. Statutory basis for another Commission practice was given by a clear grant of power to establish and enforce the reasonable classification of freight. Yet a third lesser change and one which represented a definite extension of the scope of Commission activities, was that subjecting telegraph, telephone, and cable companies to regulation. A final extension of power deserving of note appeared in the authorization to, "on a complaint, or upon its own initiative without complaint, establish through routes and joint classifications," also "establish joint rates as the maximum to be charged," and to prescribe the division of such rates and the terms and conditions under which such through routes shall be operated, in cases where the carriers have refused or neglected to act.

In addition to the provisions of the Act already mentioned, there were certain other miscellaneous ones deserving of comment. One of these was the transfer of the prosecution of suits, upon appeal, from the Interstate Commerce Commission to the Department of Justice, a change which was clearly justified since it relieved the Commission of the necessity of appearing as prosecutor in cases in which it had but recently served as judge. The right to intervene, however, was reserved to the Commission and it was further provided that "any party or parties at interest might appear

of their own volition and as of right," the Attorney General being forbidden to discontinue any proceedings against the protest of such parties in interest. Another feature of the Act was the provision made for the appointment of a commission by the President to investigate the regulation of railway security issues. This action was taken in lieu of that positive regulation of such issues which had been pledged in 1908 by the Republican party. This action was perhaps wise, though it represented a still further delay of a step which should have been taken long years before. A third miscellaneous provision deserving of mention declared that, upon request, a carrier must give within a reasonable time a written statement of the rate governing a described shipment between certain specified points, upon penalty of fine. Finally, the shipper was given the right to designate the through route over which any property offered by him for transportation should be moved, a step which made impossible the subordination of the interests of the shipper to the financial or other interests of the carrier in the routing of tonnage offered.

NOTE: References dealing with the subjects and period covered in this chapter will be found at the close of the following chapter.

XXXII

A DECADE OF RESTRICTIVE REGULATION

Rate increase cases. Application of Section 4 as amended. Failure of the Commerce Court. Railroad Securities Commission. Panama Canal Act. Extension of the Commission's service powers. The Valuation Act: provisions; organization of the Bureau of Valuation; progress and probable results. Importance of the valuation project. Machinery for handling labor disputes. The Adamson Act. Miscellaneous railway legislation. Interlocking of railway and supply companies. Railways subjected to thoroughgoing regulation. Gains of federal regulation. Criticisms of our regulatory policy.

THE operation of the Mann-Elkins Act showed clearly its general effectiveness in the accomplishment of the ends sought. The first important use of its new powers appeared in the suspension by the Commission of the proposed increases in freight rates in the so-called Ten Per Cent Rate case. In this case, which covered both Trunk Line and Western territories, a decision adverse to the carriers was reached early in 1911. Despite the great mass of evidence offered by the railways to justify such an advance, their inexperience in the handling of such a case was evidenced by poor organization and presentation of material. The diversity of conditions among individual carriers, both with respect to financial needs and with respect to the influence of increased costs, particularly of labor, proved a further stumbling-block. The weight of these factors, augmented by the burden of proof which had recently been thrown upon the railways, forced the Commission to hold that no clear evidence had been offered in support of an increase. Rather, it suggested that increasing operating revenues, together with greater efficiency of management, were capable of solving the problem of net revenue adequately.

This power of rate suspension was again invoked in 1913

in connection with the Five Per Cent Rate case in which the Trunk Line roads sought the increase indicated. In July, 1914, after an extended investigation, the Commission authorized the increase in Central Freight Association territory and, in December of the same year, extended the increase to Eastern Trunk Line territory and to New England, thus reversing, upon the basis of later developments, the position taken six months earlier. In 1915, in the Western Rate Advance case, the Commission, in a third significant instance, exercised its powers to suspend an increase in rates pending investigation. Here, again, the carriers were defeated in large measure, though the Commission did grant increased rates upon a few commodities and authorized an increase in passenger fares to 2.4 cents per mile. The final important rate case was the so-called Fifteen Per Cent Rate Advance case which came before the Commission early in 1917. After an examination of the situation the Commission held that no emergency existed such as to justify a general increase, though it did authorize the increase requested with respect to class rates in Eastern territory and later, in March, 1918, authorized additional increases upon certain commodities and in joint rates applicable to interterritorial movements.

Studying this period in retrospect there seems to be little doubt but that material increases in rates should have been accorded the carriers. The rising price level had imposed upon them heavier labor and material costs, while the rapid development of older areas resulted in a utilization of existing plants to a point often beyond their maximum efficient capacity to serve. The situation demanded an intensive development of the older properties which only sound credit could make possible. To maintain such credit in the face of the adverse conditions confronting the railways during this period was impossible. That this was clearly seen by some impartial students of the railway problem as early as 1914 is evidenced by the following statement made by Commissioner Daniels in a minority decision in the Five Per

Cent Rate case: "A living wage is as necessary for a railroad as for an individual. A carrier without a sufficient return to cover costs and obtain in addition a margin of profit large enough to attract capital for extensions and improvements cannot permanently render service commensurate with the needs of the public." However, the force of public opposition, together with what might be termed a strict constructionist attitude on the part of the Commission, blocked a more liberal rate policy. It might perhaps well be added that one of the major obstacles to the establishment by the carriers of the need for additional revenue was their inability to produce an authoritative valuation of the property devoted to public service, upon which they were entitled to a fair return. Whatever may be our judgment upon the basis of "hindsight" as to the soundness of the results attained with respect to advances of rates, it must be admitted that the Act of 1910 accomplished its purpose in this respect in a peculiarly successful manner: it made advances difficult to secure.

APPLICATION OF SECTION 4 AS AMENDED

The Commission also accomplished definite and important results upon the basis of the additional power conferred through the amendment of the Long-and-Short-Haul clause. Within the first year during which the Act was effective, almost 6,000 applications for relief were filed with that body. Of these only about 5% related to passenger service, which showed clearly that, because of the ability of the passenger to load and unload himself, this type of place discrimination was essentially a freight problem. In the application of Section 4, as amended, the Commission found it necessary to lay down certain rules for its own guidance. Among the more important of these was that different charges, to be comparable, must apply to the same type of traffic or of movement: for example, no rate governing the movement of import or export tonnage could be regarded as comparable

to one applying merely to domestic traffic. In passing upon the petitions lodged with it by the carriers for exemption from the prohibition contained in the clause, the Commission recognized four situations which might justify a heavier charge to the intermediate point. The first of these was the existence of a competing circuitous route, about 25% of the applications being based on this situation. Comparatively few of the petitions so urged, however, were granted. A second situation which seemed to justify a departure from normal rate relationships was the existence of industrial competition, as illustrated in the case of lumber movements from Georgia, Texas, Louisiana, and the northwestern states into the western north central states. Market competition was also given a small measure of recognition in this connection. A third basis for exemption was the existence of active water competition: the railway was here compelled to meet within certain limits the charges of carriers not subject to the Act. A fourth group of exceptions was made to relieve the carriers of the difficulty resulting from differences between the level of intra- and interstate rates. Because a two-cent fare was charged quite generally upon passenger movements within state boundaries while a three-cent rate was often charged over the same routes for interstate movements, it was especially difficult, in the passenger field, for railways to avoid charging through rates in excess of the aggregate of the intermediates.

The greatest number of violations of the Long-and-Short-Haul clause at the time of the passage of the Act were to be found in Southern territory and in Intermediate territory in the Transcontinental rate area. In the South, the Commission faced an exceedingly complicated problem, since the basing-point system had existed in that area for many years, and any material modification of it was certain to result in a serious disturbance of commercial and industrial relationships. In view of this fact, therefore, the Commission undertook no sweeping changes, but, rather, set itself the task of accomplishing a gradual adjustment through the elimination

of the less defensible exceptions from time to time. In dealing with the Transcontinental structure, however, the Commission was determined to effect definite and material relief for inland points such as Spokane, Reno, and Phoenix, from which vigorous protests had come throughout almost a score of years. The nature of that relief has been set forth earlier in a discussion of Transcontinental rates, past and present, so it is needless to indicate in detail the character of the changes effected. Suffice it to say that the Commission examined carefully the alleged competitive justification for the discriminations practiced against Intermediate points and based its revision of the system of rate-making upon those findings. In consequence of this decision, the United States was divided into five zones with certain prescribed relationships existing between rates from points in each zone to Intermediate and coast destinations. However, the Commission has shown no tendency to regard the situation upon which its decision was based as a fixed one and, in consequence, has modified the original order from time to time as the intensity of water competition, the great disturbing factor, has varied in the years since 1911.

FAILURE OF THE COMMERCE COURT

In contrast to the successful operation of the two major provisions just discussed, was the failure of the third, that which brought the Commerce Court into being. The personnel of the court at the time of its establishment was such as to inspire confidence; particularly did the appointment of Martin Knapp, once a member of the Interstate Commerce Commission, seem a happy one. However, it was soon evident that this court, purposed to expedite and to strengthen Commission regulation, was destined to impede and obstruct. In matters of law the tribunal took a conservative attitude that was favorable to the railways, and as to matters of fact it insisted upon that broad review which had long been the despair of both the Commission and the

public. This latter attitude was taken, too, despite the positive position of the Supreme Court a little earlier in the Illinois Central Coal Car Distribution case of which mention has previously been made. In consequence of its attitude both as to questions of law and of fact, the Commerce Court occupied a position squarely antagonistic to the Commission. Indeed, during the early period of its operation it had a reversal record of almost 100% upon Commission orders which had come before it upon appeal. To complete the story, however, it should be added that, upon further appeal by the government to the Supreme Court, this final tribunal found ground for reversing the Commerce Court and upholding the Commission in practically every instance.

That such a situation should result in immediate and active attacks upon the Commerce Court was inevitable, especially since the court was a "pet" project to the Administration to which the "insurgent" group was so strongly opposed. With Democratic support, those who were impatient of any obstruction placed in the path of Commission control secured the passage, despite strong defense of the plan by the Administration, of measures designed to eliminate the court entirely and came within a narrow margin, even in the Senate, of overridding the Presidential veto. The court was retained until the close of the Taft régime upon sufferance, but its disappearance during the first year of the Wilson Administration was a foregone conclusion. Yet with its disappearance ended an experiment which contained much of promise in the furtherance of regulation. Whether the court, as constituted, felt that it should function as a regulative body superior to the Interstate Commerce Commission, whether it sought to impress itself rather too strongly upon the judicial system to which it had been added, or whether it was merely obsessed with the belief that the judiciary should serve as the final arbiter in all matters, is immaterial; its complete loss of public confidence made continuance even in a humbled frame of mind

impossible. Indeed, the results were so unsatisfactory as to preclude serious thought of reestablishing such a special court for a considerable period of time. This was, perhaps, more unfortunate than the mere failure of the court itself, since the unhappy record of this particular body in nowise disproves the soundness of the plan.

THE RAILROAD SECURITIES COMMISSION

A fourth feature of the Mann-Elkins Act, destined ultimately to further the more effective control of carriers, was that section which provided for a Securities Commission. Upon this body President Taft appointed an eminent group of men, but it was a group of conservative character and thoroughly imbued with a belief in the efficacy of the policy of *laissez-faire* in the entire field of industry. This Commission, headed by President Hadley of Yale University, made an extended inquiry and, upon the basis of the facts obtained, formulated a report. Despite the care with which the work of the Commission had been done, certain of its major conclusions and recommendations justify little confidence or support. The declaration that there is no basis for public interest in railway capitalization because such issues in nowise affect rates and services is true, at the most, only in so far as traffic is competitive—and a considerable tonnage does not enjoy that benefit. Since there is no *absolutely* reasonable rate, the Cotting case[1] notwithstanding, the suggestion of no-par stock was peculiar, to say the least; in the absence of any definite valuation of railway properties and in the face of the inability of commissions or courts to judge the reasonableness of a rate except by the relation which the resulting net revenue bears to capitalization or valuation, no possible basis of computation would remain. Then, too, the recommendation of full publicity as a remedy for financial abuses, though containing some little promise of improved conditions, savored altogether

[1] *Cotting* v. *Kansas City Stock Yards Company*, 183 U. S. 79.

too much of late eighteenth and early nineteenth century philosophy to gain any considerable support from those who had found that, even by means of governmental compulsion in other fields, it was difficult to protect adequately public interest. The one recommendation of a valuable and constructive character in the report was that which advised a valuation of all railway properties in the United States. Although the progressives, particularly Senator R. M. La-Follette, had made unavailing efforts to secure a valuation for some years, no success had attended their efforts. The seal of approval upon their demand by a body so eminently "safe and sane" as the remainder of the report showed this Commission to be, gave valuation a "respectability" long needed and an impetus which contributed to the early embodiment of the proposal into law.

THE PANAMA CANAL ACT

Although the Interstate Commerce Act after 1910 was an effective instrument, certain desirable and even necessary things remained to be done. One of these was to extend Commission control over water traffic and the passage of the Panama Canal Act in 1912 represents the first, though inadequate, action taken toward that end. This legislation was aimed at a general practice of the railways of bringing competitive water traffic "under control"—the normal method being the establishment of railway-controlled lines and their use to drive "independents" out of the field or to force them to accept terms which were in the interest of the carriers by land. Under this statute it was made unlawful for any common carrier subject to the Interstate Commerce Act to own, in anywise control, or to have any interest in, water carriers operating through the Panama Canal or elsewhere, with which such common carrier competes or may compete for traffic. The Act, effective July 1, 1914, empowered the Interstate Commerce Commission to determine questions of fact relative to the existence of competition

and to permit the continued ownership by railways of competing water lines operated other than through the Panama Canal, if such continuance appeared to be in public interest and did not serve to prevent or reduce competition over the water route traversed by it.

The refusal of Congress to permit optional continuance of railway control in the case of Panama traffic gave the Southern Pacific no choice in the matter of disposing of its interests in that section; in truth, the Act had been aimed in considerable measure at just that situation. Carriers hoped that approval of the Commission might be had for the maintenance of old relationships elsewhere, however, and sought to prove such maintenance in accord with public interest. In this hope they were disappointed. Holding that the law gave it no option if competition would be lessened at all by railway interest in boat lines, the Commission issued orders which forced a very general "unscrambling" of rail and water properties, particularly in the case of eastern coastwise traffic and operations on the Great Lakes. Yet it appears that the Commission was itself dubious concerning the soundness of the strictures placed upon its actions: it recommended, in 1917, the elimination of the positive prohibition of the Act against interrelationship where competition was not unreasonably lessened. This doubt seems to have been justified by the rapid disappearance of tonnage in certain service. The decline was particularly conspicuous on the Great Lakes, though it came during an abnormal period and was perhaps ascribable more largely to the war shipping problem than to the enforcement of the Act under discussion. Yet in more than five years since the close of the war the Lakes service has not returned to normal under a régime of separate control. In any case, a wider range of discretion might well be given the Commission: the goal should be maximum public interest, not enforced competition.

A second feature of the Panama Canal Act which deserves mention is the further extension of Commission

authority over all rail-and-water movements. In addition to giving the Interstate Commerce Commission power to order the establishment of suitable physical connections between rail lines and water facilities, the law authorized that body to establish through routes and maximum joint rates over the rail and water carriers so connected; to establish maximum proportional rail rates to and from ports on joint rail-and-water traffic and to specify the extent and condition of their application; to require any railway moving through tonnage from an interior point under agreement with a particular water carrier to make similar terms with any or all other such carriers from the port served to the same foreign country. By these provisions it was hoped to break up those port and dock monopolies and to eliminate exclusive agreements between specific rail and water carriers which gave independent carriers in both fields but little chance to participate successfully. Much can be done in opening ports to competition of a freer type and in removing discrimination from which the public is the ultimate sufferer. This accomplished, it is unlikely that the Commission will need the power to fix water rates.

ESCH CAR SERVICE ACT

In the development of federal regulation prior to 1920, major emphasis was placed upon rate control; the equally important matter of service was given scant attention. In fact, the only legislation during this period giving needed authority in this field was the Esch Car Service Act, passed in 1917. This law was the direct result of the serious congestion of traffic which developed in 1916 and continued through 1917, despite the efforts of the railways to solve the problem by cooperation. When the carriers failed to relieve the situation by voluntary cooperation, Congress acted upon the recommendation made by the Interstate Commerce Commission in its 1916 report, and passed the Esch bill, embodying substantially the suggestions of that body. By this Act

the Commission was given the power to establish, after hearing, rules governing the movement, distribution, exchange, interchange, and return of cars and also payment for their use. If, in its judgment, an emergency exists, the Commission may modify or suspend rules in force without formal notice or hearing. The law also provides that the Commission may require any or all carriers to file their car-service rules and regulations as a part of their tariffs. However, since the law did not require action, and since the Commission felt that best results could be secured through cooperation with the railways' car-service organization, the powers given were not actively exercised. Nevertheless, the bestowal of such broad powers served to make certain railways, loath to act with others in clearing the situation, more ready to cooperate; thus, without use, the legislation was justified.

THE VALUATION ACT

More significant in the matter of railway regulation than the legislation just discussed, however, is the Valuation Act which was passed early in 1913. This step had long been advocated by the friends of regulation, but the indifference of the public, coupled with the active and bitter opposition of those having financial interest in the carriers, had made it impossible to secure action earlier. Finally, however, railway leaders came to a belated realization of the importance of the project to them—indeed, of the necessity of having available authentic figures covering the worth of the various properties devoted to the public service. Without such figures it was well-nigh impossible to establish the inadequacy of given rates to yield a fair return and without them that bogey of "overcapitalization," or "watered stocks," would not down. Railway and radical, for once, found themselves in accord; the bill passed without opposition.

The Interstate Commerce Commission is charged with the administration of the undertaking, and is required by the statute to do the following important things: to make a

physical inventory of all property of the carriers "used and useful" in the rendition of transportation service; to ascertain for each piece of property the original cost of date, the cost of reproduction new, and the cost of reproduction new less depreciation, together with "other values and elements of value, if any"; to determine the original cost and present value of all lands devoted to the public service; to investigate the history of each property, and report particularly concerning securities issued and their marketing, as well as the financial results of operation; to ascertain the amounts and value of all grants and donations received by the carriers from all sources and the sums derived from the sale of all land grants from governmental units. It is further required that the valuations, once completed, shall be revised from time to time so that they may not become useless to the Commission and to others. In the execution of the provisions of the Act the railways are required to cooperate by furnishing such information and documents as may be necessary. The tentative valuations of the Commission are to be published and, if protested, are subject to revision by the Commission after a hearing. Final valuation figures are to be *prima facie* evidence of carrier value in all actions under the Act to Regulate Commerce.

To carry out the provisions of 1913 law, the Commission organized a separate Bureau of Valuation and placed at its head Mr. Prouty, whose long and splendid service as a member of the Commission itself gave a basis for confidence both on the part of the railways and the public. To facilitate the collection and handling of necessary data the field was divided into three parts. The first of these covered the physical property of the carriers, and involved an enumeration and careful observation of the various items thereof. In charge of this work were placed engineers. A second group assumed charge of accounting and statistical work incident to the investigation, while a third section was organized to ascertain the value of carrier lands. Parallel to the Bureau of Valuation there was created a similar organiza-

tion by each carrier and a relatively close degree of cooperation existed between government and carrier in the determination of such basic facts as numbers, quantities, and so forth.

VALUATION PROBLEMS AND RESULTS

This gigantic project of railway valuation had not progressed far until it became apparent that at least three major questions were certain to present difficulty and to result in controversy between the Commission and the railways. The first of these involved the matter of depreciation and that partially offsetting item, appreciation of physical property. The railways urged that in fixing final value, depreciation should be neglected if the property be in such condition as to enable it to operate on a basis of 100% efficiency, or that depreciation be regarded as offset by appreciation and both therefore ignored. Perhaps as serious a difficulty arose in the determination of land values, the policy of the Commission and that of the carriers varying widely again at this point. The former advocates the determination of present value according to the worth of adjacent property, while the latter asks the use of a multiple scheme of a character similar to that suggested by the master, Judge Otis, in the Minnesota Rate cases. A third difficulty arose over the extent to which intangible values should be recognized by the Commission in the fixing of a final value. Although the Commission recognizes the existence of intangibles in small measure, many properties will protest vigorously against what they regard as the inadequate allowance made for good-will, going value, and other intangible items.

Despite the magnitude of the task and certain unusual difficulties thrown in the way of its completion by American participation in the recent war, such progress has been made as to justify the expectation that the work will be essentially complete at the close of 1925. Field work has been practically finished and a large number of tentative valuations have been served. To December 31, 1923, the Interstate

Commerce Commission had published 328 tentative valuations, which cover 468 properties with 55,026 miles of line and 79,035 miles of track. Of the tentative valuations served, 127 have become final because no protest was filed within the prescribed time. Prior to July 1, 1924, final value figures have been made public for only three concerning whose value dispute arose, but doubtless the Commission will rapidly publish the final figures for other properties. This will facilitate the judicial determination of the many moot questions which have arisen and will continue to arise until answers upon all points have been given.

Work has progressed sufficiently, however, to enable the Interstate Commerce Commission to make an estimate of the value of the American railway net. In the Rate Advance case of 1920 that figure was placed at approximately $19,000,000,000, a sum more than $2,000,000,000 in excess of the total amount of railway securities then outstanding in the hands of the public and only slightly below the book value of the properties as shown by carrier records. Since, in arriving at this figure, the Interstate Commerce Commission quite likely rejected all value elements concerning which serious doubt might be entertained, it is probable that the final value figure as of 1920 for the railways of the country as a whole will approximate $20,000,000,000 when all questions have been judicially determined. True, to date a large proportion of the properties for which a tentative value has been fixed are overcapitalized, some grossly, but the explanation of this fact seems to lie in the character and location of most of the carriers for which figures have been published, the smaller properties and those in relatively undeveloped areas being chronically overcapitalized. This adverse balance will not be found to exist in the case of the larger and more prosperous railways, however; indeed, it is certain that the more conservatively managed properties will show valuations tremendously in excess of outstanding securities. The most adverse result of the valuation from the standpoint of the railway investor which

can be anticipated will be a relative equality between capitalization and capital value, with the distinct possibility of marked undercapitalization of the railway plant as a whole. A most unfortunate ending of the valuation question for politician and demagogue who have gained and held place in public life largely upon the basis of bitter denunciation of stock watering and overcapitalization in the railway field! To be sure, these champions of public interest have already taken steps to justify themselves, in the face of facts as ascertained, by challenging the soundness of cost of reproduction as a fundamental basis of value determination and by questioning both the method of arriving at land values and the inclusion of donated items. Yet this protest appears to be a last, "die-hard" effort to justify the long maintenance of a position later proved untenable. Certainly it seems that if the Commission has erred at all in its valuation policies, it has been on the side of the public rather than the railways.

IMPORTANCE OF VALUATION PROJECT

The importance of this valuation of railways, which has already extended over a period of 10 years, would be difficult to exaggerate. It will make available official figures relative to true value and in so doing will lay at rest for all time the loose charges and claims that have been made in recent years concerning the present gross overcapitalization of railway corporations. With the disappearance of such charges it will be easier to obtain a fair return upon railway property and this, in turn, will aid materially in the rehabilitation of railway credit. Such rehabilitation, it should be added, is fundamentally essential if private ownership and operation of railways in the United States is to continue. Furthermore, the extent to which practical use can be made of such valuation figures is indicated by certain provisions of the Transportation Act which are set forth more specifically in the following chapter. Suffice it to say here that, upon the basis of the valuation of properties, rates are to be

determined; the maximum capitalization of consolidated properties fixed; and repayments to the government of excess earnings computed. Certainly it would appear today that even the early opponents of a thoroughgoing valuation of railway properties must recognize the useful and constructive character of this great work.

RAILWAY LABOR LEGISLATION

The major acts thus far discussed, the Act of 1887, the Elkins Act, the Hepburn Act, and the Mann-Elkins Act, together with the Panama Canal and the Valuation Acts, have been concerned essentially with the relationship between carriers and patron. Certain other legislation, however, has been placed upon the federal statute books which justifies consideration. A portion of this legislation has dealt with the railway labor problem and represents an effort on the part of the government to facilitate the settlement of labor disputes. The earliest legislation toward that end was passed in 1888, but the first important law intended to secure continuity of service to the public was the Erdman Act, passed by Congress a decade later. This made provision for the mediation and voluntary arbitration of disputes between the carriers and all train service employees. In theory, the Commissioner of Labor and the Chairman of the Interstate Commerce Commission were to function as mediators at the request of either party. In case mediation failed they were to urge voluntary arbitration before a board composed of three men, one chosen by each of the interested parties and the third by these two. Under the operation of this Act, however, it appeared that the volitional element was eliminated in part by the exertion of governmental and public pressure upon the two parties to reach an agreement which would avoid open warfare, and labor found this compulsion somewhat irksome.

In an effort to strengthen the machinery for handling railway labor disputes, the Newlands Act was passed in 1913.

This Act provided for a permanent Board of Mediation and Conciliation, composed of a Commissioner and two other government officials. This Board had the power to offer its services without solicitation in all cases of dispute between railway workers and carriers. The Act further provided for the creation of boards of arbitration to handle disputes as they arose. These boards were to be composed of three men, selected as under the Erdman Act, or, if desired, of six men, of whom two were to be selected by each interested party and two by the four so chosen. Such a board might make a binding award by a majority vote, but this award was to cover only such points as were specifically referred to it for decision, and all disputes relative to the interpretation of the award were to be referred back to the original board for settlement. The advantages of this second Act over its predecessor lay in the provision for a permanent Commissioner, in the reference of all disputed points in the decision to the original board for interpretation, and in the possibility of the creation of a larger board to handle disputes arising.

A third significant enactment dealing with labor was the Adamson Act of 1916. That this law may be better understood it is desirable to sketch its background briefly. In the face of rising living costs and possessing a strong, effective organization, railway labor, and particularly train service employees, had been restive for several years. Their demands had been referred to boards of arbitration with results of a character unsatisfactory to the workers: no sound ground could be found for the determination of wage rates in the absence of any accepted theory of wages, and the awards had been invariably a compromise. Early in 1916 essential unity of action was attained on the part of the so-called "Big Four" and the first nation-wide movement was launched. The demand made was one which, in theory, had to do with the length of the working day. Specifically, the organizations asked for a basic eight-hour day with time and a half for overtime. In fact, however, the change promised

to shorten the working day in few cases but did threaten to increase railway labor costs by approximately $100,000,000 according to the estimates offered by the carriers. With the refusal of the carriers to accede to the demand, a nation-wide strike loomed, particularly since railway labor refused to submit the question for arbitration. In an effort to avoid such a catastrophe President Wilson intervened, suggesting that the railways grant the basic eight-hour day with non-punitive overtime and promising to use his influence to secure the creation of a federal commission to investigate the situation and make recommendations concerning its solution. This proposal was refused by the railways, with the result that a nation-wide strike was called for September 4, in utter disregard of public interest. Faced with this situation President Wilson acted immediately, recommending to Congress the passage of a measure which would obviate the impending misfortune. He recommended legislative recognition of the basic eight-hour day to remove the strike threat, legislation similar to the Canadian Industrial Disputes Act providing for compulsory investigation of railway labor disputes, and statutory authorization to draft railway employees into military service when justified by military necessity. He also urged the appointment of a commission to study the effects of the establishment of the basic eight-hour day upon railway operations.

As so frequently happens, attention was given only to those of the President's recommendations which were aimed to avert immediate disaster; the establishment of a permanent plan for dealing with labor disputes in a positive way and the draft proposal were wholly neglected. Congress acted with that unseemly haste which was requisite if the impending disaster consequent upon a strike were to be avoided and by its action provided for the basic eight-hour day as demanded, with a pro rata payment for all overtime. Provision was also made for a commission of investigation. Although the Act specified that it should become operative January 1, 1917, the bitter opposition of

railway management resulted in court action and consequent delay. To force immediate compliance with the Act, a strike was called for March 17, 1917, but by compromise the date was changed to March 19 when a decision was handed down by United States Supreme Court reversing the position taken by the lower court and upholding the constitutionality of the Adamson Act. Thus closed a struggle between railway labor and railway management which was the first to be fought out in the political arena, a struggle which quite probably would have been repeated within the next three years, had it not been for the immediate entry of the United States into the European War.

MISCELLANEOUS RAILWAY LEGISLATION

In addition to the acts previously mentioned, Congress has placed upon the statute books an employers' liability law, together with certain other legislation having to do with railway operation. Important among these lesser acts is the sixteen-hour law which had for its purpose primarily the protection of the public against those accidents consequent upon unreasonably long hours of service. Certain coupling and brake legislation has also been enacted, as well as laws covering the inspection of equipment, especially motive power, to discover its fitness for service—the essential purpose here was the protection of employees against injury, though public safety was a consideration, too. Power has been given to the Interstate Commerce Commission to require reports of all accidents, also, and, in the case of the more serious ones, the Commission has made careful investigations, issuing reports which seek to explain and apportion fault. Another act affecting operation is the twenty-eight-hour law governing the movement of live stock, which requires unloading and feeding at the end of each such period in transit, upon humanitarian and business grounds, except as the shipper consents to its extension to 36 hours.

In addition to the foregoing legislation which applied di-

rectly to the railway enterprise, there are two other laws which merit mention in connection with a discussion of that field; the one applies to railways only in so far as they are engaged in interstate commerce, the other contains certain sections specifically applicable to the railways. The former, the Sherman Act, which was passed in 1890, declared that "every contract, combination in the form of trust or otherwise, or conspiracy in restraint of trade or commerce in the several states or with foreign nations, is hereby declared to be illegal." Although passed presumably to enable the government to block combinations in the industrial field, it was applied by the Supreme Court to the railway industry in 1897 in the Trans-Missouri Freight Association case, and since that time has been a definite barrier to consolidation and interrailway agreements, both contrary to and in harmony with public interest.

The measure intended to control certain phases of railway enterprise was the Clayton Act, passed by Congress in 1915. The first provision of this Act which was directed particularly towards the railways declares no such corporation shall "acquire, directly or indirectly, the whole or any part of the stock or other share capital of another corporation engaged also in commerce where the effect of such acquisition may be to substantially lessen competition . . . . or to restrain such commerce . . . . or tend to create a monopoly in any line of commerce." Specifically exempted from the operation of this provision, however, are corporations purchasing stock for investment purposes, such stock not being used "to substantially lessen competition." It is also provided that the Act shall not be so construed as to prohibit common carriers from assisting in the construction of, or purchasing, branch lines where no substantial competition exists between such main and branch lines. The extension of lines by the acquisition of stock or other carriers with which no substantial competition exists is also permitted under the Act. A second provision of the Act was purposed to eliminate certain evils which had arisen incident

to intercorporate dealing. That section prohibits common carriers, after two years from the date of approval of the Act, from having dealings in securities, supplies, and so forth, or to make or have construction or maintenance contracts "to the amount of more than $50,000 in the aggregate, in any one year, with another corporation, firm, partnership, or association when the said common carrier shall have on its board of directors or as its president, manager, or as its purchasing or selling officer, or agent in a particular transaction, any person who is at the same time a director, manager, or purchasing or selling officer of, or who has any substantial interest in such other corporation, firm, partnership, or association," except as such dealings shall take place under regulations to be prescribed by the Interstate Commerce Commission and in accordance with which the most favorable bidder shall enjoy the business. By this section it was hoped to eliminate a practice which closed the field to certain concerns and had resulted in the exploitation of some railways by "insiders." It was freely charged that many such "insiders" had, serving in a dual capacity, succeeded in "feathering their nests" at the expense of one or the other of the corporations with which they occupied positions of trust. Because of difficulties faced in the "unscrambling" of relationships and also because of the marked opposition of the carriers to this section of the Act, its effective date was postponed from time to time until, in 1921, by the use of the veto, President Wilson blocked any further extension of time.

RAILWAY REGULATION THOROUGHGOING

In this and the two preceding chapters a brief history of the development of federal regulation of railways has been given. Beginning in 1887 with the passage of the original Act to Regulate Commerce, the first phase of regulation ended with the passage of the railways into the hands of the government as a war measure at the close of 1917. On

the whole, the period may perhaps be characterized as one during which the public was engaged in a struggle to establish its mastery over a great industry which had been peculiarly individualistic and, therefore, keenly resentful of interference. Recognition of public supremacy came slowly and only after a bitter, long-drawn-out struggle at the polls, in the halls of Congress, and before the courts, but by the close of the period a large degree of control had been established along many lines. With respect to rates the Interstate Commerce Commission possessed adequate power except as to the fixation of minimum rates; it was able to suspend proposed tariffs and to fix charges, both absolute and relative. With respect to service a very considerable control had been established and, although discrimination persisted, the Commission possessed power to deal with all types of place, commodity and personal discrimination brought before it. Control over accounting practices was complete and a very large element of publicity had been attained. Furthermore, a sharp restriction upon corporate relationships of railways had been made by the anti-pooling clause, the Sherman Act, the Panama Canal Act, and the Clayton Act.

GAINS OF FEDERAL REGULATION

As the result of regulation as it developed prior to 1918, certain definite gains must be recognized. The public had enjoyed lower charges than otherwise would have governed and had also been relieved in a large measure of the evils of discrimination with respect to both rates and services. Furthermore, public control, together with a rising standard of business morality, served to give more adequate protection to the investor, particularly the owner of stocks. But the public has not enjoyed all the gains resulting from regulation. The railways have been largely relieved of pressure on the part of important patrons for special privileges and consideration. Greater corporate honesty has followed the policy of "letting in the light" by the development of

publicity, and railway management has been forced to gain a clearer understanding of the underlying principles governing the business of transportation as a whole and the operation of individual properties. This increased knowledge is clearly shown in the progress which the carriers have made during the past decade in the presentation of their status before the Interstate Commerce Commission in important rate cases. Finally, advantage has come to the railways out of regulation through the greater unity of action that has developed and which is typified by the organization for effective cooperation of the railway executives of the three great geographical areas and of the country as a whole.

CRITICISMS OF OUR REGULATORY POLICY

There are, however, certain criticisms which must be lodged against regulation as it developed prior to 1918. Most deserving of criticism, perhaps, was the spirit which actuated legislation of a regulatory character: rather than constructive in nature, it was restrictive and punitive. This is understandable in view of the bitter struggle necessary on the part of the public to establish its supremacy, but the persistence of that spirit was unfortunate, nevertheless, once the supremacy had been gained. Furthermore, a measure of criticism may be laid against the nature of regulative action. Overzealous in its desire to control railway rates and cooperation, Congress had failed completely to provide adequate control in other fields, conspicuously labor and finance. Legislative acts were largely the result of the need of meeting immediate situations, rather than the consequence of a clear understanding of the long-time interest of the railways and the public. In short, our regulatory policy seems to have been political rather than statesmanlike in character. Also attributable in part to the character of regulation, federal and state, has been the rendition of service by the railways at relatively low cost but by a plant which has become increasingly inadequate in the face of

growing public needs. To the nature of that control is likewise assignable, in part, the financial prostration of the railways, which became apparent shortly prior to the period of government operation.

Regulation during the 30 years following 1887 had accomplished much good but its character was such that it carried with it serious threat of injury to both corporate and public interest. There was sore need of a detailed, analytical study of the necessities of the situation with a view to devising a constructive plan of regulative action, a plan calculated to serve the long-time interests of the public by the adequate protection of the railways. However much we may desire to divorce the interests of railway and public, the two are, and must always remain, so intimately related that a step which prejudices the one must injure the other. For such careful study and consideration the period of federal control offered an opportunity. It was but natural, therefore, that, in the legislation which brought the period of federal control to a close, there should appear certain results of this study. To the consideration of this new legislation, known as the Transportation or Esch-Cummins Act, which embodies the results of that study and represents an effort to capitalize past experience, attention will next be given.

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XXXIII

THE TRANSPORTATION ACT OF 1920—HISTORY AND PROVISIONS

Essential features of the "solutions" offered. Dual character of the problem. Senate and House take action. Points of agreement between the two bills. Important differences. The Conference Committee bill. Transfer to private operation. Temporary financial assistance to the railways. Railway interrelationships. Control of construction and abandonment. Security regulation. Settlement of labor disputes. Provisions dealing with rates and surplus. State and federal jurisdiction. Miscellaneous rate provisions. Broadened powers over the routing of traffic. Changes in the organization of the Commission.

While the war endured, the American people voiced no protest against government operation of the railways; rather, it was felt that this intervention had furthered both war activities and public service. With the signing of the Armistice in November, 1918, however, the railway problem was again forced upon public attention. The determination to center all energies upon the successful prosecution of the war gave place, almost overnight, to a strong desire to revert quickly to a pre-war status. It is not strange, then, that as early as December, 1918, President Wilson urged upon Congress in his annual message the speedy and constructive consideration of the railway problem. Such consideration was given during the following year not only by Congress but by individuals and by groups throughout the United States as well. Indeed, it seems indisputable that greater consideration was given to the railway problem during this period and that more constructive thought was expended in a search for its solution than in any previous year in the history of American railway development. At last it appeared that public, railway, and government alike had come to a realization of the necessity of abandoning an

old policy so characterized by restrictive measures and substituting therefor a new one calculated to serve public need more adequately.

Numerous plans were offered, each advocated as a complete solution of the railway problem. To discuss these plans in detail is impossible here, but it is desirable, perhaps, to call attention to certain variations among them. All solutions offered called for the abandonment of federal operation at the earliest practicable moment, except the one suggested by the Federal Railroad Administration itself. This plan was urged because it not only permitted the government to meet certain problems leisurely, but also afforded the public an opportunity to study and evaluate government operation under normal conditions. In practically all of the plans proposed, competition was to be retained. None ignored the desirability of the regulation of security issues or the necessity of giving to the railways adequate revenues if credit were to be restored. As an answer to the railway labor problem suggestions varied from compulsory arbitration through mere voluntary measures to the extreme of ignoring the matter altogether. From among the elements of the various solutions proposed, it was both the privilege and the obligation of Congress to select such features as it felt might best characterize the future relationship between the government and the railways.

DUAL CHARACTER OF THE PROBLEM

The problem faced by Congress following the Armistice was of a dual character: it was essential that the railways should be returned to their owners subject to a regulative policy better calculated to serve public interest than the old, the consensus of opinion being strongly in favor of such return, and it seemed necessary that certain temporary provisions should be made to ease the difficulties incident to the transfer of control to the owners. During the period of federal control not only did the Administration make no

effort to protect the individual character of the numerous properties and to preserve either their traffic or personnel, but in many cases it adopted measures which seemed to be aimed at the destruction of individuality. At least it can be said fairly that the Federal Railroad Administration took a long-time point of view in the initiation of certain of its policies, and one which was anything but helpful in the re-establishment of operations upon a corporate basis. Then, too, during the period of federal control additions and betterments to a considerable value were made by the government and much equipment purchased and assigned to particular carriers. A demand by the government for the immediate payment of such indebtness would have caused serious embarrassment, even to many of the stronger roads, in the face of the railway credit situation in 1920. Finally, the government was morally obligated to render financial assistance until revenues could be increased to cover expenses: failure to advance rates as costs mounted in 1918 and 1919 had made deficit operation a certainty until the rate level was increased. In short, it was just as essential that Congress prescribe conditions which would make possible the return of the patient to normal, as that it establish a régime which would reasonably assure the maintenance of good health, once attained.

SENATE AND HOUSE TAKE ACTION

Attention was early given by the Committee on Interstate Commerce of the Senate to the railway problem. Hearings were held from January 3 to February 21, 1919, and, as a result of these hearings, together with further investigations made by a subcommittee, there was introduced into the Senate the first Cummins bill. From September 2 to October 23, further consideration was given to proposed legislation which resulted in the introduction of a substitute measure by Senator Cummins, chairman of the Committee. This Committee bill, for such it was since it repre-

sented the position of the entire Committee with one exception, Senator La Follette, was offered to the Senate November 10, and was considered at length upon the floor of the Senate from December 2 to December 20. Upon this latter date the bill was passed and, with the House measure which had been previously submitted to the Senate for consideration, was referred to a Joint Conference Committee.

The railway problem was first presented to the House of Representatives through the introduction of the so-called Esch-Pomerene bill on June 2, 1919. This bill, embodying essentially the views of a considerable majority of the members of the Interstate Commerce Commission, was introduced into the House by Chairman Esch of the Committee on Interstate and Foreign Commerce, and into the Senate by Senator Pomerene. Upon this bill hearings were held by the House Committee from July 15 to October 4 and, as a result, a new bill was formulated which was reported to the House on November 10. During the entire week following the bill was debated upon the floor, passing the House on November 17. It was then submitted to the Senate for consideration as the Esch bill.

AGREEMENT AND DIFFERENCES BETWEEN THE TWO BILLS

In certain particulars the bills passed by the House of Representatives and the Senate were quite similar. This was especially true of the temporary provisions designed to ease the adjustment involved in the transfer from federal control to private operation. Both bills provided for a six months' guarantee of one-half the annual compensation paid under the "standard contract," and for the funding of carrier indebtedness to the government for capital expenditures made during the control period. The House bill further provided a revolving fund from which loans might be made to the railways. Both bills declared that rates and classifications in effect at the termination of federal control should remain in force for a specified period and definite

procedure was outlined for action purposed to obtain needed advances. Both measures recognized the need of federal regulation of security issues and the supervision of capital expenditures. Approval was required by each for any plans involving the construction of new mileage or the abandonment of old. The power to fix minimum as well as maximum rates, to determine joint rates, and to prescribe the division of joint rates as among participating carriers was also given to the Interstate Commerce Commission. The control of the Interstate Commerce Commission in rate regulation was definitely recognized in such cases as involved conflict between federal and state policies; the import of the Shreveport case was thus written into law. Provisions relative to permissive pooling, to car service, to the routing of traffic, to the exercise of unusual powers in emergency situations, and to the joint use of terminal or other facilities were also common to both measures. Upon the details of the readjustment program, therefore, and upon those elements of permanent policy for which past regulative experience had shown obvious need, the Cummins and Esch bills were in substantial agreement.

Interesting as the points of agreement between the two measures may be, the differences were more striking. Both the strength and the weakness of the House measure lay in the fact that its provisions rested solidly upon experience. A measure so grounded, however, must inevitably fail to meet squarely and adequately new problems of a major character which arise from time to time. The Senate bill took cognizance of those problems and endeavored to meet them in a positive and constructive manner. Where the Esch bill sought to solve problems by agreement as they arose, the Cummins bill proposed the application of compulsion through channels definitely and specifically provided. This difference appears in the provisions relative to consolidation. The Cummins bill provided for compulsory consolidation of all railways into from 20 to 35 systems so organized that, with uniform rates and under efficient man-

agement, each could earn substantially the same rate of return upon the valuation of its property as fixed by the Interstate Commerce Commission. The Esch bill, on the other hand, declared for *permissive* consolidation in the interests of better service, economy of operation, and the solution of the strong and weak line problem, but such consolidations were to be made at the suggestion of the carriers and in accordance with no definite plan. The same difference is equally evident in the matter of financial safeguards; the Cummins bill provided a statutory rule of rate-making under which the railways *as a whole,* in each rate-making district, should be allowed to earn a fixed return upon the aggregate value of their property, while the Esch bill was wholly silent upon this matter, leaving to the Commission the entire problem of the determination of what a reasonable return should be. Even more positive was the Senate proposal concerning the handling of railway labor disputes as compared with the House plan. Though each measure provided adequate machinery for the settlement of labor disputes, moral suasion represented the extent of the power of the various bodies for which provision was made in the House measure while final power to fix terms was given by the Cummins bill to an appeal board, railway strikes and lockouts being made unlawful.

Another striking difference between the two measures, and one which further emphasized the traditional background of the one and the search for new and superior methods on the part of the other, appeared in the divergence between the machinery of regulation provided by the two. That a proper groundwork of control might exist for regulation by the proposed agencies, the Cummins bill provided for the federal incorporation of all railroads with specific provisions relative to the composition of each board of directors, while the Esch bill made no mention of reincorporation because the change was regarded as unnecessary. The measure passed by the Senate also proposed a striking redistribution of powers and responsibilities incident to federal regulation

of railways. To the Interstate Commerce Commission was given authority to fix just, reasonable, and adequate rates; to determine the valuation of railway properties; to control accounting systems and practices; to approve consolidation; and to exercise such other functions as have pertained to that body in the past and which were not transferred to a new body for which provision was made. This new body, the Transportation Board, was to relieve the Commission of much mere administrative work. The House measure, on the other hand, provided for no additional regulative body but sought, rather, by enlarging the existing body, to secure the adequate administration of all regulative legislation.

THE CONFERENCE COMMITTEE BILL

Despite certain points of agreement, therefore, it is clear that an exceedingly difficult problem faced the Conference Committee when it sought to harmonize the two measures. This committee began its work December 22 and closed on February 18. It is unlikely, however, that the struggle between those championing more positive and constructive action as against the somewhat negative provisions of the House bill would have terminated in the conference report offered the House and the Senate on the latter date had not President Wilson, in his proclamation of December 24, indicated his purpose to return the railways to private operation on March 1. The impossibility of harmonizing certain outstanding features of the two measures resulted in compromise. In this compromise the untried features of the Cummins bill were greatly modified or eliminated, a result in part of the realization that Congress, as a whole, was not yet ready to apply compulsion in important directions as provided by the Cummins bill. Therefore it would appear that, since railway credit had been the outstanding problem for a time, the Senate Committee bargained wisely when it succeeded in obtaining in a broad way the incorporation of the financial provisions of its measure in the

Conference bill, even though at the price of compulsory consolidation, compulsory arbitration, compulsory federal incorporation, the establishment of a Transportation Board and certain elements of the financial plan.

Debate upon the Conference bill began in the House several days prior to the time of its report out of committee, although the discussion was confined to certain features known to have been agreed upon by the joint body. Consideration by the Senate followed immediately upon the submission of the report. On February 21, the Conference bill was passed by the House of Representatives and two days later by the Senate, in each case without amendment. The vote in the House was largely a party vote, while in the Senate, although Republican support was almost unanimous, Democratic votes were about equally divided. This Conference measure was signed by President Wilson on February 28, 1920, and, although officially termed the Transportation Act of 1920, it is more widely known to the public as the Esch-Cummins Act.

TRANSFER TO PRIVATE OPERATION

Since the immediate problem which faced Congress was that of providing for the transfer to private control of the railway mileage operated by the government under the Federal Control Act, the Transportation Act concerned itself first with the two phases of that problem. It first declared that, after 12:01 a. m. March 1, 1920, the President might no longer exercise the powers conferred upon him by the Federal Control Act and that he should, at that time, relinquish possession and control of all railways and other systems of transportation then operated subject to his powers. Provision was then made for a final settlement with the various carriers concerned. To this end certain additional sums were placed at the disposal of the Federal Railroad Administration and access to all necessary records, together with such other powers as were needful to pro-

tect governmental interests, was given. To carriers with whom no contract had been signed, the President was authorized to pay sums needed to meet certain expenses enumerated in the standard contract, such as interest on funded debt; final adjudication was left until a later date. All legal proceedings arising out of federal control were to be brought, not against the particular carrier involved, but against an agent designated by the President instead.

The first important feature of the Act was one intended to render immediate financial aid to the carriers; it provided for the funding of carrier obligations to the United States. Though the right of a set-off of the carriers' indebtedness to the government for capital expenditures against any federal obligation arising out of the standard contract was recognized, it was specifically declared that no set-off should be made which would prevent the carrier from receiving sums necessary for the payment of interest, taxes, corporate charges, and expenses accruing during federal control, in addition to sums requisite to the payment of dividends. It was further provided that such set-off should not be exercised except as the government had paid the carrier as much as one twenty-fourth of its operating expenses for the calendar year 1919, to provide the carrier with working capital. Upon request by the carrier, obligations to the United States for additions and betterments were to be funded for a period of 10 years or less at the option of the carrier, with interest at 6%, the carrier to give security as the President should prescribe. Such necessary evidences of indebtedness as were given by the carrier under this provision might issue "without the authorization or approval of any authority, state or federal, and without compliance with any requirement, state or federal, as to notification."

For reasons set forth in a preceding paragraph, the guarantee under which the carriers had operated during federal control was extended to cover the readjustment period. This extension of the guarantee for an additional six months was made optional with the carriers and applied not only to such

railways as were operated by the government under the Federal Control Act, but also to the many other carriers, largely the less important lines, which had not been so operated. Indeed, with respect to the latter, the guarantee was made retroactive for the entire period of federal control, thus compensating them for heavy financial losses and remedying a grievous injustice suffered during the period throughout which practically all larger and stronger properties had been protected. To obviate controversy with respect to the continuance of charges authorized during the period of federal control, provision was made that all rates, classifications, regulations, and practices in effect on February 29, 1920, upon carriers subject to the Interstate Commerce Act should be continued in force until changed by the exercise of federal or state authority. That the Federal Government should be safeguarded against adverse state action it was further decreed that, prior to September 1, 1920, no rate was to be reduced and no classification, regulation, or practice so modified as to result in a reduction of the charge, except as approved by the Interstate Commerce Commission. All sums in excess of the guarantee which were collected by individual carriers electing to accept the same, were to be paid into the treasury of the United States, except in so far as it might be necessary for any carrier to retain sums to meet fixed charges accruing during the guarantee period. The ascertainment and certification of the amount necessary to make good the guarantee to those carriers which suffered a deficit, was to be made by the Interstate Commerce Commission to the Secretary of the Treasury with the provision that, during the period, advances not to exceed the estimated amount of the guarantee might be made to the carrier to enable it to meet fixed charges and operating expenses. Provision was also made for an extension of the guarantee to the American Railway Express Company, subject to election by that corporation, and upon definite terms laid down by the statute.

That the carriers might be better enabled "properly to

serve the public during the transition period immediately following the termination of federal control," a revolving fund of $300,000,000 was created, out of which loans were to be made to them. Such loans were to be made upon the approval of the Interstate Commerce Commission, in accordance with applications made by the carriers. These applications set forth "the amount of the loan and the term for which it is desired, the purpose of the loan and the uses to which it is to be applied, the present and prospective ability of the applicant to repay the loan and to meet the requirements of its obligations in that regard, the character and value of the security offered, and the extent to which the public convenience and necessity will be served." In addition to such information it was declared that the Commission might require any other data which it regarded as pertinent. If, in view of facts as disclosed in hearing or investigation, it was considered that "the making in whole or in part of the proposed loan by the United States is necessary to enable the applicant properly to meet the transportation needs of the public" and that reasonable assurance existed of the carrier's ability to meet all financial obligations incident to the loan, the Interstate Commerce Commission "may certify to the Secretary of the Treasury its findings of fact and its recommendations as to: the amount of the loan which is to be made; the time, not exceeding five years from the making thereof, within which it is to be repaid; the character of the security which is to be offered therefor; and the terms and conditions of the loan." Upon the basis of this certificate the Secretary of the Treasury, at any time within 36 months from March 1, 1920, was authorized to make a loan not exceeding the maximum amount recommended by the Commission, such loan to bear interest at 6%. Here, again, it was provided that evidences of indebtedness issued were not subject to the authorization or approval of any authority or to any requirements as to notification. With the aid of this revolving fund it was hoped that, despite the then doubtful credit position of the

bulk of the carriers and despite the relatively unpromising condition of the financial market, sufficient funds might be made available to meet the pressing needs of the carriers in their efforts to serve public interest more effectively.

RAILWAY INTER-RELATIONSHIPS

After making what may be considered adequate provision for the transition period, the Act deals with changes in permanent regulative policy. One of the more important of these changes concerns the problem of carrier relationship. For a period of more than 30 years there had been upon the federal statute books a strict prohibition upon pooling. Believing that such a policy no longer represented maximum public advantage, Congress legalized in the Transportation Act such pooling arrangements as may, from time to time, receive the approval of the Interstate Commerce Commission. This approval may be given only after a hearing to determine whether the proposed pooling agreement "will be in the interest of better service to the public, or economy of operation, and will not unduly restrain competition." Further, the Commission is authorized, upon application by any carrier or carriers and after hearing, to approve "the acquisition . . . . by one of such carriers of the control of any other such carrier or carriers, either under a lease or by the purchase of stock or in any other manner not involving the consolidation of such carriers into a single system for ownership and operation," upon such a basis as may be found by that body to be just and reasonable. It is deserving of note, however, that public interest is at all times protected by reserving to the Commission the right to issue such supplementary orders incident to pooling and unification agreements as it may deem necessary.

But more striking in its nature and much more far-reaching in its effect upon the relationship of railways, if carried into effect, is the provision of the new law relative to "the consolidation of the railway properties of the continental

United States into a limited number of systems." As a basis of consolidation the Interstate Commerce Commission is instructed to prepare a tentative plan upon which hearings are to be held, after which that body is ordered to "adopt a plan for such consolidation and publish the same." This plan is subject to modification at any time if change seems desirable in the public interest. In the division of the railways into systems under the plan adopted, "competition shall be preserved as fully as possible and wherever practicable the existing routes and channels of trade and commerce shall be maintained. Subject to the foregoing requirement, the several systems shall be so arranged that the cost of transportation as between the competitive systems and as related to the values of the properties through which the service is rendered shall be the same, so far as practicable, so that these systems can employ uniform rates in the movement of competitive traffic and, under efficient management, earn substantially the same rate of return upon the value of their respective railway properties." Thus it is that Congress hopes to solve the "strong and weak line" problem which has been so troublesome a factor in the past.

The realization of that hope, however, is dependent upon the extent to which the plans adopted parallel railway self-interest, since all consolidations are to be voluntary. If the proposed consolidations meet with the approval of the particular carriers involved, then a merging of their corporate interests and properties may be made according to the procedure set forth in the Act. One feature of particular interest in this connection is the requirement that the outstanding securities at par value of the corporation which assumes the consolidated properties "shall not exceed the value of the consolidated properties as determined by the Commission." All consolidations effected in pursuance of this Act are relieved from the operation of all restraints or prohibitions by law, state or federal, purposed to protect the public against agreements in restraint of trade or monopolistic control. The Act also made it possible for the

Commission to approve the permanent continuance of the established express business of the country by the American Railway Express Company, subject to the approval and authorization of the Interstate Commerce Commission.

Yet another feature of the Act influencing railway relationships was that dealing with the interlocking directorate. After December 31, 1921, it was declared unlawful for any person to hold the position of officer or director of more than one carrier "unless such holding shall have been authorized by order of the Commission upon due showing . . . . that neither public nor private interests will be adversely affected thereby." The effective date of that provision of the Clayton Act governing the interlocking of railway and supply company directorates was extended to January 1, 1921, except for such corporations as were organized after January 12, 1918. These two provisions were purposed to give the Commission further control over corporate interrelationships to the end of preventing a community of interest inimical to public service in the one case, and an interlocking prejudicial to the financial success of the railway and, ultimately, burdensome to the shipper, therefore, in the other.

CONTROL OF CONSTRUCTION AND ABANDONMENT

The American people have long realized the folly of competitive construction. To prevent such waste many states had acted, but it was not until 1920 that a corporation proposing the construction of a new line or of additional mileage was required to secure federal approval in the form of a certificate of convenience and necessity from the Interstate Commerce Commission. Such a certificate is also required of any carrier purposing to acquire or operate any line of railroad or extension thereof. Furthermore, "no carrier . . . . shall abandon all or any portion of a line of railroad or the operation thereof unless and until there shall first have been obtained from the Commission a certificate that

the present or future public convenience and necessity permit of such abandonment." However, it is provided that such a certificate need not issue incident to the construction and abandonment of switching and similar tracks situated wholly within one state or of electric railways not operated as a part of a general steam railway system of transportation. That public interest may be adequately protected, the Act provides in a detailed manner an opportunity for a full presentation of facts by requiring that a copy of the application be filed by the Commission with the governor of each state concerned and that reasonable notice by publication be given in each county through which the particular line of railway is constructed or is to be operated.

REGULATION OF SECURITY ISSUES

Closely related to the requirement governing the construction and abandonment of lines, is the broad power given to the Interstate Commerce Commission over the issuance of securities by all railway corporations. For a period of almost 50 years such control had been urged and for many years it had been characteristic of the regulation of railways by certain states; in 1920 the states which failed to exercise some degree of control were few. To facilitate federal regulation and to eliminate the confusion resulting from diverse control, the Federal Government assumed, under this statute, exclusive jurisdiction. After 120 days following the effective date of the Act no securities might be legally issued by any carrier subject to regulation except upon investigation by the Commission and with the approval by that body of such issuance. That approval is to be given the applicant only if the issue or assumption of responsibility "(1) is for some lawful object, within its corporate purposes and compatible with the public interest, which is necessary or appropriate for or consistent with the proper performance by the carrier of service to the public as a common carrier, and which will not impair its ability

to perform that service, and (2) is reasonably necessary and appropriate for such purpose." Here, again, the Act provides for a hearing of various parties at interest and specifically requires the notification of the governor of the state in which the carrier operates, and reserves to state regulative bodies the right, upon hearing, to make such representations "as they may deem just and proper for preserving and conserving the rights and interests of their people and the states respectively involved in such proceeding." It is further declared that such validation of issues shall in no sense "imply any guarantee or obligation as to securities on the part of the United States." The only exception made relative to security issues is incident to notes offered by the carrier and maturing not more than two years from date, "aggregating (together with all other then outstanding notes of maturity of two years or less) not more than 5% of the par value of the securities of the carrier then outstanding." "In the case of securities having no par value, the par value for the purposes of this paragraph shall be the fair market value as of the date of issuance."

SETTLEMENT OF LABOR DISPUTES

Another provision of the Act which is of peculiar interest is that relating to the settlement of disputes between carriers and their employees and subordinate officials. Declaring, in the first instance, that "it shall be the duty of all carriers and their officers, employees, and agents to exert every reasonable effort and adopt every available means to avoid any interruption of the operation of any carrier, growing out of any dispute between the carrier and the employees and subordinate officials, thereof," the law then provides that Railroad Boards of Labor Adjustment "may be established by an agreement between any carrier, group of carriers, officials of carriers or organization or group of organizations thereof." These Boards shall hear and decide disputes involving grievances, rules, or working conditions

that cannot be settled through conference. The Act further provides for the establishment of a Railroad Labor Board to be composed of nine members, selected by the President by and with the advice and consent of the Senate; three of these nine are to be chosen from a list of nominees offered by the employees and are to represent that group, three from a list submitted by and representative of the management group, and the remaining three, chosen without restriction, are to represent the public. The members of the Board serve for a period of five years at an annual compensation of $10,000 and it is specifically required that all members shall sever active relationship with carrier or labor organization. Neither shall Board members have a pecuniary interest in any railway.

The Labor Board serves as a body of original jurisdiction in all disputes involving grievances, rules, or working conditions in the absence of the appropriate Adjustment Board and as an appeal Board upon matters in respect to which any Adjustment Board certifies that it "has failed or will fail to reach a decision within reasonable time or in respect to which the Labor Board determines that any Adjustment Board has so failed or is not using due diligence in its consideration thereof." Under conditions laid down by the Act, the Labor Board takes original jurisdiction also in all cases involving disputes with respect to wages or salaries of employees or subordinate officials, "if it is of the opinion that the dispute is likely substantially to interrupt commerce." No decision by this Board can be rendered except by a majority of its membership, with the further provision that in any case involving wages or salaries at least one public member must concur in the majority decision to validate it. That the Labor Board may function effectively, wide powers are given it by the statute; it may compel testimony, force the production of papers and other evidence needed, and require access to all records relating to any matter which the Board is authorized to consider or investigate. The peculiar feature of the labor provisions of the Act is that neither strike

nor lockout is prohibited during the period of investigation and that the findings of the Board are enforceable in no legal manner; such findings are observed at the option of the interested parties, with the pressure of public opinion alone available to compel conformance thereto.

In an endeavor to guide the Labor Board and such Adjustment Boards as might be created from time to time in the determination of wages or working conditions, the law declares that there shall be established "rates of wages and salaries and standards of working conditions which, in the opinion of the Board, are just and reasonable. In determining the justness and reasonableness of such wages and salaries or working conditions, the Board shall, so far as applicable, take into consideration among other relevant circumstances:

1. The scale of wages paid for similar kinds of work in other industries;
2. The relation between wages and the cost of living;
3. The hazards of the employment;
4. The training and skill required;
5. The degree of responsibility;
6. The character and regularity of the employment; and
7. Inequalities of increases in wages or of treatment, as the result of previous wage orders or adjustments.

Any violations of a decision of the Labor Board or an Adjustment Board, either by carrier or employee, or organization thereof, may be advertised in such manner as that body may determine after due notice and hearing.

PROVISIONS DEALING WITH RATES AND SURPLUS

Although the labor provisions of the Transportation Act have occupied an important place in public attention since its passage, even greater attention has been directed toward, and interest aroused by, certain new and striking provisions concerning rates and surplus. Against these features of the Act the weight of the House members of the Conference

Committee was thrown, but the Senate members clung tenaciously to them and sacrificed other new and interesting provisions that these might be retained. The first important provision lays down a rule of rate-making, declaring that the Commission shall so fix rates that the:

> . . . . carriers as a whole (or as a whole in each of such rate groups or territories as the Commission may from time to time designate) will, under honest, efficient and economical management . . . . earn an aggregate annual net railway operating income equal, as nearly as may be, to a fair return upon the aggregate value of the railway property of such carriers, held for and used in the service of transportation.

The obligation of determining what percentage of the aggregate property value shall constitute a fair return thereon, is placed upon the Commission, with the sole permanent limitation that the percentage designated shall be uniform for all rate groups or territories. In making such designation "it shall give due consideration, among other things, to the transportation needs of the country and the necessity (under honest, efficient, and economical management of existing transportation facilities) of enlarging such facilities in order to provide the people of the United States with adequate transportation." A temporary limitation was imposed upon Commission action, however: a fair return for the two years beginning March 1, 1920, was declared to be a sum equal to 5½% of the aggregate value of railway properties, except as the Commission might add an additional ½% to make provision for improvements, betterments, or equipment which are chargeable to capital account. The "aggregate value" to which reference is made in connection with these provisions is to be determined by the Commission and based upon results obtained from work done under the Valuation Act of 1913; it is specifically stated in the law that this body "shall give to the property investment account of the carriers only that consideration to which, under such law, it is entitled in establishing values for rate-making purposes."

Although it is ultimately hoped to establish railway systems of relatively equal financial strength through the operation of the consolidation provisions of the Act, it is obvious that, until such grouping of strong and weak properties had been accomplished, many strong carriers would continue to earn at a rate in excess of that fixed by the Commission for the carriers as a whole. To take care of this situation, the Act provides that any carrier which receives during any year "a net railway operating income in excess of 6% of the value of the railway property held for and used by it in the service of transportation, one-half of such excess shall be placed in a reserve fund established and maintained by such carrier, and the remaining one-half thereof shall . . . . be recoverable by and paid to the Commission for the purpose of establishing and maintaining a general railway contingent fund." If, during any year, the net railway operating income of a property falls below 6% of the value of its property, a carrier may draw from this individual reserve fund in sufficient measure to make up the difference. However, the accumulation of this reserve fund by a carrier need not extend beyond a sum equal to 5% of the value of its railway property "and when such fund is so accumulated and maintained, the portion of its excess income which the carrier is permitted to retain . . . . may be used by it for any lawful purpose." As the one exception to the operation of this recapture provision it is stated that the Commission may permit "any corporation . . . . proposing to undertake the construction and operation of a new line of railroad . . . . to retain for a period not to exceed 10 years all or any part of its earnings derived from such new construction in excess of the amount" necessary to yield a return of 6% upon the value of the property.

The general railroad contingent fund which is to be built up from the government's share of earnings beyond 6% is to serve as a revolving fund, administered by the Commission. "It shall be used by the Commission in furtherance of public interest in railway transportation, either by

making loans to carriers to meet expenditures for capital account or to refund maturing securities originally issued for capital account or by purchasing transportation equipment and facilities and leasing the same to carriers," for which provision is made in the Act. In making application for a loan from this fund or for the lease of equipment purchased by moneys appropriated from it, the carrier must set forth "the amount of the loan and the uses to which it will be applied, the present and prospective ability of the applicant to repay the loan and to meet the requirements of its obligations in that regard, the character and value of the security offered, and the extent to which public convenience and necessity will be served." Other information pertinent to the propriety and expedience of granting the loan may also be required by the Commission, such as facts relative to physical situation, ownership, capitalization, and indebtedness.

STATE AND FEDERAL JURISDICTION

Because of the close relationship existing between it and those provisions of the Act designed to secure a fair return for the carriers as a whole, the enactment of the Shreveport principle into law may well be mentioned next. Although the Interstate Commerce Commission is authorized to confer with the state regulatory bodies "on any matter wherein the Commission is empowered to act and where the rate-making authority of the state is or may be affected by the action taken by the Commission," federal supremacy is clearly recognized. "Whenever . . . . the Commission . . . . finds that any such rate, fare, charge, classification, regulation, or practice" as is imposed by the authority of any state "causes any undue or unreasonable advantage, preference, or prejudice, as between persons or localities in intrastate commerce on the one hand and interstate or foreign commerce on the other hand, it shall prescribe . . . . in such manner as, in its judgment, will remove such

advantage, preference, prejudice, or discrimination." Such prescription of rates, fares, and so forth, shall be observed by the carriers affected, "the law of any state or the decision or order of any state authority to the contrary notwithstanding."

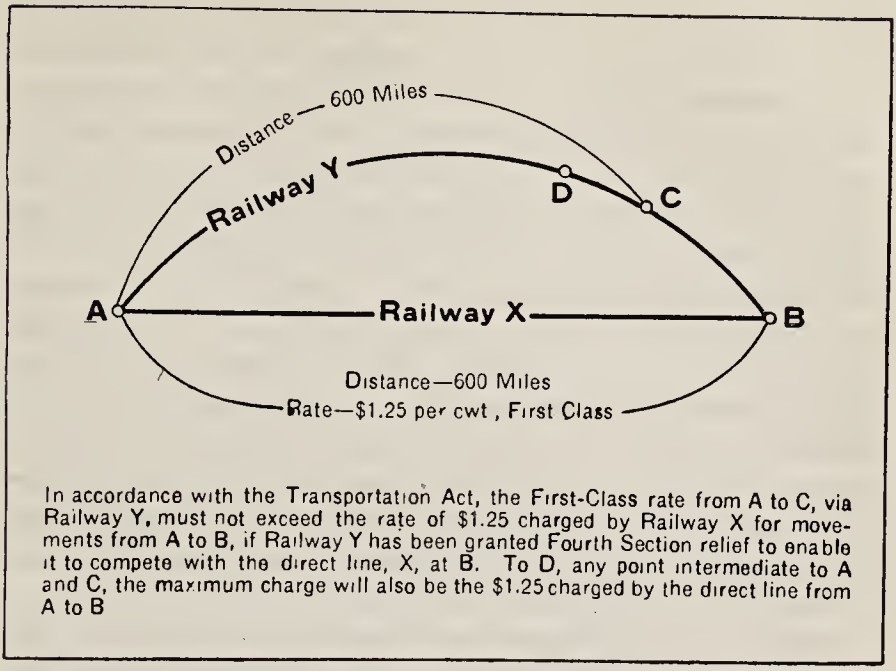
MISCELLANEOUS RATE PROVISIONS

Certain other provisions of importance representing modifications in our regulatory policy appear in the Act with respect to rates. The broad power of the Commission to suspend proposed changes in rates, fares, classifications, and so forth, pending investigation, against which just complaint had been made by the carriers because the suspension period was too long, was modified so that, beyond an initial suspension of 120 days, a further delay of not more than 30 days is possible. However, if the Commission has not completed its investigation at the end of this maximum period, it possesses the power to require "the interested carrier or carriers to keep accurate account in detail of all amounts received by reason of such increase" as the basis of a refund if the final decision of the Commission is adverse. It is possible, therefore, that the change will benefit the carriers but little, since this further power may be used by the Commission to force the railways to accede to a continued suspension of the proposed schedule. The Act also gives the Commission the power to prescribe minimum as well as maximum rates, fares, and charges, except in the case of joint rates where one of the carriers is a water line. In such case the maximum rate alone can be set.

Another interesting extension of Commission authority over rates is found in its control, under the Act, of the divisions of joint fares, rates, and charges. Acting upon complaint or upon its own initiative, the Commission may, if it finds such existing divisions "unjust, unreasonable, inequitable, or unduly preferential or prejudicial, as between the carriers which are parties thereto . . . . prescribe the just, reasonable, and equitable divisions thereof to be re-

ceived by the several carriers." In prescribing such division the law specifically declares that "the Commission shall give due consideration, among other things, to the efficiency with which the carriers concerned are operated, the amount of revenue required to pay their respective operating expenses, taxes, and a fair return on their railway property . . . . and the importance to the public of the transportation services of such carriers," together with such other facts as would ordinarily "entitle one carrier to a greater or less proportion than another carrier" of the joint charge. The purpose of this control over rate divisions is twofold—it gives the weaker line which is a party to joint tariffs adequate protection against its stronger connection and also enables the Commission to deal effectively and directly with those abnormal divisions to plant facilities which represent indirect rebating.

A final change affecting rates which was made by the Transportation Act of 1920, gave legal sanction to the policy of the Commission with respect to the enforcement of Section 4, as amended, in 1910. It is first declared that, in granting exceptions to the long-and-short-haul principle, "the Commission shall not permit the establishment of any charge to or from the more distant points that is not reasonably compensatory for the service performed." The Act then specifies that, if a circuitous route be permitted, because of its circuity, to meet the charges of a more direct route between competitive points, intermediate points on the circuitous route shall not be charged a higher rate than is charged by the direct route between such competitive points except as the distance over which traffic is moved on the circuitous route shall be greater than the length of the direct route. A further restriction was added which declares that no authorization for exceptions "shall be granted on account of merely potential water competition, not actually in existence." This provision is intended to make impossible certain exceptions sought, though these had long met with uniform refusal at the hands of the Commission.



In accordance with the Transportation Act, the First-Class rate from A to C, via Railway Y, must not exceed the rate of $1.25 charged by Railway X for movements from A to B, if Railway Y has been granted Fourth Section relief to enable it to compete with the direct line, X, at B. To D, any point intermediate to A and C, the maximum charge will also be the $1.25 charged by the direct line from A to B

Figure 38: The 1920 amendment of Section 4 illustrated

CONTROL OVER ROUTING AND SERVICE

The new legislation broadened greatly the control of the Interstate Commerce Commission over the routing of traffic. Many railways, either without affiliations or "at outs" with connecting carriers, have often suffered serious financial injury because of the improper diversion or delivery by connecting carriers of tonnage specifically routed over their lines. To meet this situation the Transportation Act declares that the carrier which improperly diverts traffic shall be liable to the injured line for the total amount of the rate or charge which it would have received had it participated in the haul. A second change in routing regulations is found in the provision that, in case the Commission believes any railway is, for any reason, unable to transport the traffic offered it in such manner as to serve the public properly, that body may "make such just and reasonable directions with respect to the handling, routing, and move-

ment of the traffic of such carrier and its distribution over other lines or roads, as in the opinion of the Commission will best promote the service in the interest of the public and the commerce of the people." This adjustment shall be made upon such terms as the carriers may fix by agreement or, in case of disagreement, as the Commission shall determine to be just and reasonable. When traffic has not been routed by the shipper, "the Commission may, whenever public interest and a fair distribution of the traffic require, direct the route such traffic shall take after it arrives at the terminus of one carrier or at a junction point with another carrier, and is to be there delivered to another carrier." Furthermore, in time of war or threatened war the Commission may, upon certification by the President that certain traffic should enjoy preference or priority in transportation, direct that such preference or priority be afforded.

The power of the Interstate Commerce Commission over matters of car service and joint use of facilities has also been greatly extended by the Act. Following the declaration that it shall be the duty of every carrier "to furnish safe and adequate car service and to establish, observe, and enforce just and reasonable rules, regulations, and practices with respect to car service," certain specific requirements are made concerning the distribution of cars for the transportation of coal among the coal mines served by any railway. The maintenance of just and reasonable ratings during periods of car shortage is prescribed and the decision of the Commission in the Illinois Central Coal Car Distribution case, as later upheld by the United States Supreme Court, was written into the Act in the declaration that "each and every car furnished to or used by any such mine for transportation of coal" shall be counted against that mine. It is further provided that the Commission may, whenever it "is of the opinion that shortage of equipment, congestion of traffic, or other emergency requiring immediate action exists in any section of the country," order, with or without hearing, a suspension of all regulations then

established with respect to car service for such time as the Commission may determine. Further, it may "make such just and reasonable directions with respect to car service, without regard to the ownership as between carriers of locomotives, cars, and other vehicles, during such emergency, as in its opinion will best promote the service in the interest of the public and the commerce of the people," compensation to be fixed by agreement between or among the carriers or, if dispute arises, by the Commission. Indeed, "if the Commission finds it to be in the public interest and to be practicable, without substantially impairing the ability of a carrier owning or entitled to the enjoyment of terminal facilities," it shall have the power to require the joint or common use of terminals, including main-line track or tracks for a reasonable distance outside of those terminals, on such terms and for such compensation as may be fixed by mutual agreement between the carriers or, in event of their failure to agree, by the Commission.

CHANGES IN COMMISSION'S ORGANIZATION

The Transportation Act of 1920 places heavier burdens upon the Interstate Commerce Commission in fields formerly occupied by regulation and, in addition, adds heavily to its work in the form of new duties and responsibilities. To enable that body to discharge these added functions the membership of the Commission was increased from nine to eleven men and, at the same time, the compensation was increased to $12,000 per year. No restriction is imposed upon the President in the appointment of these commissioners, "by and with the advice and consent of the Senate," except that not more than six shall be appointed from any one political party. That the Commission might have statutory authorization for a change in its method of procedure which is intended to increase efficiency, it is empowered by its order to divide the members into such divisions of not less than three, as it may deem necessary. To afford

greater elasticity, specific authorization is given for changes in organization from time to time as the judgment of the Commission dictates.

Such, then, are the major provisions of the Transportation Act of 1920, which has so largely determined the relationship between the railways and government since March 1, 1920. In the next and concluding chapters the operation of the Act will be described and a critical analysis of our regulatory policy made.

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XXXIV

THE OPERATION OF THE TRANSPORTATION ACT OF 1920: RATE OF RETURN AND CONSOLIDATION

Influence of general conditions upon the railways. A period of prosperity. The depression. Improvement in business conditions. Price relationships in recent years. Railway plant ill-prepared for efficient service in 1920. Inadequacy of rate and wage levels at close of federal control period. Railway rates increased. Application of the increases to intrastate traffic. Depression brings demands for decreased rates. Reductions made by Commission and railways. Economic conditions and rate theories. Financial results under the Transportation Act, Class I roads. Variations in earnings among districts and individual lines. Tentative plan for consolidation formulated. The consolidation problem as developed by extended hearings.

THE Transportation Act of 1920 contains many new and interesting features. Of these, some have been adapted from state practice, others were quite untried. The Act represents a definite change in our regulatory policy and was intended to accomplish certain needed changes in the railway situation; to meet certain phases of the "railway problem" which had become acute. However, it is just as true of legislation as it is of that cherished product of the kitchen that "the proof of the pudding is the eating." So the soundness of the various important provisions of the Transportation Act must be judged largely by the degree to which they have accomplished or give promise of accomplishing desired ends. A brief presentation of the operation of this legislation and a critical analysis of its workings therefore remain.

No true appreciation of the operation of this measure can be had, however, except as the reader possesses a clear understanding of the general economic situation in the United States after the return of the railways to private

operation. Particularly is this true since those years have been unusual from every point of view. The "return to normalcy" in the United States proved a long, hard journey and, as the public made this backward "trek," the air has been constantly filled with the recriminations of various groups which believed, rightly or wrongly, that they were compelled to travel a rougher path than others. Conditions in America have been quite unsatisfactory and the European situation throughout the entire period has been most disturbing: only recently has the Dawes report seemed to offer a feasible solution of the reparations problem. Under such conditions no important piece of legislation could escape harsh criticism; if, during those badly unsettled years, moderately satisfactory results have been attained, a favorable presumption is justified.

A PERIOD OF PROSPERITY

When the Armistice was signed in November, 1918, American business enterprise was at flood tide. Immediately a decline in activity appeared and with that decline came, by February, a drop of 10 points in the price level.[1] By February a decline in car loadings was also evident and from that time until mid-September shipments ran much below those of the preceding year.[2] The year of 1919 opened with enormous car surplus which reached its peak of about 450,000 cars in February and did not disappear until the usual heavy seasonal movements began in the fall. During these spring and summer months, however, business had begun to revive and the price level moved upward in an almost unbroken course from February, 1919, to February, 1920, the closing month of federal control. At that time it stood at 232%, sharply above the February of the preceding year. In July, 1919, car loadings began to reflect

[1] All price index numbers given are those of the United States Bureau of Labor, 1913 base.

[2] All car-loading figures taken from data compiled and published by the American Railway Association, Car Service Division.

the increased business activity and from that month forward, despite the coal and steel strikes in the fall, tonnage, as compared with the previous year, increased steadily until the close of federal control. Perhaps no fact shows the changed situation early in 1920, as compared with the preceding year, better than the car shortage of about 85,000 at this time in contrast with the tremendous surplus of the preceding year.

It appears, then, that the railways were returned to their owners when the wave of prosperity was sweeping irresistibly onward; business activity, as indicated by the movement of prices, had not yet reached its crest. By April the price level had advanced to 245% and in the month following reached 247%. During the two succeeding months it declined slightly, but for July still stood above 240%. The public was buying freely, even extravagantly, and the major complaint offered by the producer of goods was inability to supply the demand. Labor shortages existed in every field and the demands made upon the railways exceeded their capacity to serve. The car shortage which appeared in January became increasingly worse as spring passed and the active summer months approached, the shortage in August being about 130,000.

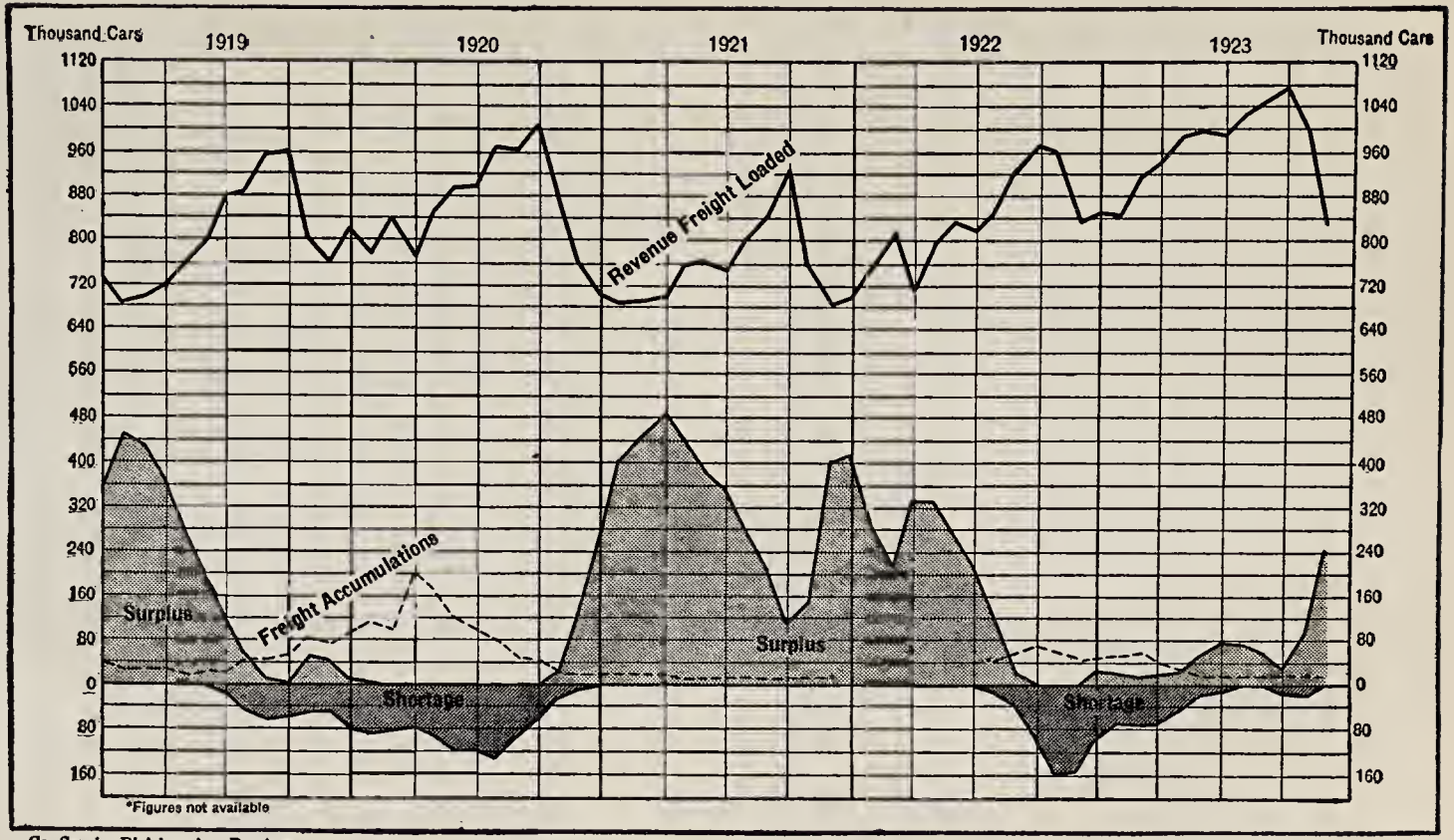
THE DEPRESSION

At this point the turn came: a serious depression marked the close of 1920, the entire year of 1921, and the early portion of the succeeding year. After August, 1920, the price level broke sharply and receded steadily until it approached bottom in mid-year, 1921. At that point it steadied, declining but slightly to January, 1922, when the minimum figure of 138% was registered. Back of this tremendous slump in business stood the "buyers' strike" which, coming out of a clear sky to the great majority of producers, left in its wake a heavy wreckage. Mines were closed, furnaces shut down, manufacturing operations

stopped, and within a few months the unemployed were numbered, literally, by the millions. The effect of this great change was clearly evident in the railway field: in mid-December car loadings broke sharply downward as compared with the preceding year and, from that time forward until February, 1922, in no single month was a reasonable parity with 1920 attained. Throughout 1921 monthly loadings were far below the figures for the corresponding month of 1920 and the total for that year stood more than 13% below the figure of more than 45,000,000 in 1920. Ton-miles show this decline in traffic even more clearly, the decline here being from approximately 410 billion to 307 billion, slightly in excess of 25%. Because of this slump in traffic, a car surplus of tremendous proportions developed late in 1920 and did not disappear until mid-year, 1922; its peak was reached in April, 1921, when the railways had a surplus of 493,000 cars, almost 20% of their total equipment, and at no time prior to September, 1922, did the surplus fall below 100,000.

IMPROVEMENT IN BUSINESS CONDITIONS

True it is that "it's a long road that has no turning"; happily for all groups concerned, the public, labor, and capital, a turn now came in the dreary journey which all had been experiencing together since late in 1920. Early in 1922 the price level began to advance and from that time until March and April of the following year the tendency was steadily upward; in those months it reached "high" at 159%. Since that time a gradual decline has been evident, the year closing at 151%. Business, however, remained good, though everywhere a spirit of caution has been in evidence: no one cares to travel again the road of inflation which led in 1920 to the collapse that shattered many dreams. This recovery in business showed itself in a general resumption of activity; the demand for goods increased and this permitted many concerns which had operated on part-



Car Service Division, Am. Ry. Asso.

Figure 39: Average weekly cars of revenue freight loaded, daily average freight accumulations, and car surplus and shortage.

time or not at all for many months, to resume operations. A labor shortage again developed on a small scale and car loadings from February, 1922, exceeded for every month those of the preceding year, and in 1923 the high monthly figures of 1920 were exceeded in every month but one, December, the total loadings for the year 1923 approaching 50,000,000 cars for Class I carriers alone. Ton-mile service also increased, the figure for 1922 being more than 10% above that of 1921 and in 1923 the previously unequaled total of more than 415 billion was attained. In September of 1922 the first car shortage since late in 1920 appeared, but this shortage was gradually reduced by the unparalleled efficiency of railway operation until, in September, 1923, when the railways loaded the largest number of cars in their history, they were able to show a surplus of almost 50,000 cars, and that surplus was gradually increased, in spite of heavy traffic, until it reached 240,000 in December, 1923.

PRICE RELATIONSHIPS IN RECENT YEARS

A mere statement of the trend of business activity throughout this period fails, however, to give the background for a considerable part of the unrest and complaint which mark the post-war readjustment. During this period it was essential that all products dismount from the "high horse" of 1920 prices. That the movement downward should be an even one was desirable, but certain factors of the situation made the resistance of some groups less than of others; in consequence the readjustment was clumsy, halting, and at times the cause of serious distress. The truth of this statement is clearly shown by Table 38 which appears on the following page and gives the 1917-1923 averages for the major groups. It is quite apparent that agriculture suffered heavily. While the return to a situation comparable to pre-war conditions represented an orderly retreat for most groups, it represented for two important groups, agriculture and the metal industry, a disastrous

TABLE 38

INDEX NUMBERS OF WHOLESALE PRICES, BY YEARS, 1917 TO 1923

(1913 = 100)

Year	Farm Products	Foods	Cloths and Clothing	Fuel and Lighting	Metals, Metal Products	Building Materials	Chemicals and Drugs	House-Furnishing Goods	Miscellaneous	All Commodities
1917	190	167	175	169	231	157	202	125	148	177
1918	218	188	228	170	187	172	215	153	156	194
1919	231	207	253	181	162	201	169	184	175	206
1920	218	220	295	241	192	264	200	254	196	226
1921	124	144	180	199	129	165	136	195	128	147
1922	133	138	181	218	122	168	124	176	117	149
1923	141	144	200	185	144	189	131	183	123	154

rout. The situation of the latter, also a producer of raw materials, became and has remained, except as to steel, even worse than that of those engaged in agriculture. But, because of his greater numerical importance and his political power, the plight of the farmer has attracted more widespread attention and sympathy. The actual situation of the farmer during the period of readjustment, however, was for a time worse and is now better than the table above indicates: in June, 1921, the price of agricultural products stood at 114%, while the cost of living stood at 142%, whereas by December, 1923, the two figures had approached parity, standing at 145% and 151%, respectively.

RAILWAYS UNREADY FOR EFFICIENT SERVICE

From the facts and figures given in the foregoing paragraphs, it is clearly evident that the railways faced an exceedingly difficult problem; a period of deflation, marked by sharp maladjustments, widespread post-war unrest, and disturbed conditions abroad, are not calculated to serve as an encouraging basis for experimentation in the field of constructive railway control. Yet this situation, bad as it was, was further aggravated by the situation of the railways

themselves at the time of their return to private operation. In the first place, the railways were turned back to their owners in poor condition to meet even ordinary traffic demands. Yet the demands which the railways faced during the year of 1920 were greater than in any previous year of their history. During the first year of federal operation, entire attention had been devoted to the problem of "winning the war." The widespread shortage of labor and materials made maintenance an incidental consideration. In 1919 the Federal Railroad Administration again pursued an inadequate maintenance policy, this time because of light revenues and the unwillingness of Congress to furnish the Administration with adequate funds. Although the actual amounts expended during the period of the federal operation indicate a liberal policy as compared with preceding years, a detailed study of the facts supports the contention, made by the carriers, of deficit maintenance. This fact is clearly evident and demonstrable in the case of rail, tie, and ballast renewals, though somewhat less so in the maintenance of structure. Locomotive maintenance had been adequate, but the influence of intensive war use upon passenger equipment and the effect of pooling upon freight-car maintenance was apparent. The physical structure of the railways on March 1, 1920, was clearly not such as to promise well for that heavy service which they were soon to be asked to render.

But the railway plant was in poor condition to meet public demands for quite another reason than the under-maintenance of physical property during the months of federal operation: the human factor was less capable of serving the public than it had been prior to 1918. During the period of government operation traffic departments had been largely wiped out, operating staffs had been badly riddled in many cases, and other changes in administrative officers had further aided in making railway organization less capable of effective service. Yet this disorganization of the staff was not as serious as the weakening, almost the

disappearance, of morale among the rank and file. Prior to the war period, employee loyalty had been characteristic of the workers on practically every line; often this loyalty had been developed consciously, at effort and cost to the carrier, in the belief that it represented one of the greatest assets of the business. Naturally, railway workers became infected with the same virus which poisoned the veins of rich and poor alike during this period: their attitude toward work changed from one of interest in the work itself to a primary and almost sole concern in the monetary returns to be had. But employee morale was undermined worse by another factor than by this general tendency toward commercialization.

The experience of railway workers under government operation during a period of rapidly rising prices and inevitable wage increases, under policies laid down by a man who was not oblivious to the political importance of the votes of railway workers and administered by one from their own ranks, resulted in a complete change of front upon the question of government ownership by both captain and private in the ranks of railway labor. The organizations of railway workers not only sought to perpetuate the gains made during federal operation but also wished to strengthen further their position. As a means to that end the Plumb plan was offered, and it received the immediate and enthusiastic support of all railway labor organizations. This plan, visionary and untried, seeking to win support by a campaign which destroyed the confidence and faith of the worker in railway management, did serious injury; its proponents, who urged it upon the basis of half-truths and falsehoods, were responsible for much of the inefficiency of railway labor and the antagonism to management which existed for a time. It is quite possible that the railways suffered more seriously because of low worker morale in the years immediately following the resumption of private operations than they did from the condition of the physical plant.

INADEQUACY OF RATE AND WAGE LEVELS

A second heritage of private operation from federal control was a wholly inadequate rate level. Shortly after the government had taken over the railways, freight rates were increased by 25% and passenger rates to a minimum of 3 cents a mile. The Railroad Administration hoped this increase would be sufficient to enable the carriers to "pay their own way." Despite the deficit of 1918, Mr. McAdoo continued to show an "amazing optimism" but, because of diminished traffic, the deficits of the early months of 1919 indicated that even worse showings were yet to follow. Serious consideration was then given to a further increase of rates and this step was strongly urged upon Director-General Hines. However, after careful consideration of the problem and consultation with the President, he declined to act: the Administration desired to avoid giving any excuse for additional increases in the rapidly ascending cost of living; furthermore, it contended that, in view of the approaching return to private operation, the question of an additional increase in rates was properly one for the Interstate Commerce Commission.

It is doubtful if an adequate increase in rates would have raised prices materially, and certain it is that the Administration showed inconsistency with respect to its second justification for inaction by negotiating the national agreements with railway labor within a few months of the close of the period of federal control. The common judgment upon the refusal of the Director-General to authorize increases in rates is well stated by Senator A. B. Cummins who declared:

> I think the most serious complaint that can be made of the Railroad Administration lies in the fact that it did not return the railroads to their owners self-sustaining; it ought to have established rates before the railroads were returned that would make the railroads reasonably self-sustaining. The failure to do that not only imposed upon the railroads a most unpopular duty but imposed upon Congress the requirement to make the guarantee running from the first of March, 1920, to the first of Sep-

tember, 1920. . . . It was just as much the duty of the Government to return those roads with rates that would sustain them in their operations as it was its duty to return them in as good condition physically as it took them.[1]

A third problem which the railways faced upon the return of the properties to private operation lay in the field of labor. Large increases in wages had been granted in 1918 and these were followed by readjustments, generally upward. However, the wage level was still unsatisfactory to labor and, after the cost of living began to move sharply upward in 1919, insistent demands were made for additional increases. These demands were refused by the Railroad Administration, President Wilson himself urging labor to delay until the general attack upon profiteering had been made, Attorney-General Palmer being cast in the rôle of Don Quixote. When the futility of this method of reducing the cost of living became apparent, the President and the Director-General urged further delay, awaiting the return of the railroads to private operation: as in the matter of rates, they contended that the readjustment of wages should be made by such tribunal as might be set up by pending legislation. To this second plea railway labor organizations also acceded, though the leaders did so under protest; the rank and file were demanding immediate action. They were feeling the pinch of increased prices and, in the face of promises and delays but no action, had become restless and resentful. This fact tended to weaken further the morale of railway labor during the first months of private operation.

Yet, in the face of the handicap which rested upon railway management because of the undermaintenance of the physical property, the disruption of staff and the weakening of morale, in spite of inadequate rates and a labor force which was insistently demanding an immediate upward revision of the wage scale, private management was called

[1] Hearings before Senate Committee on Interstate Commerce under Senate Resolution 23, pp. 2181-82.

upon to handle immediately, and during the most difficult months of readjustment, a hitherto unequaled traffic. That it succeeded as well as it did was indeed fortunate for the public and a reason for congratulation to the railways. With this background for the railway situation following March 1, 1920, the operation of the outstanding features of the Transportation Act will be more clearly understood.

RAILWAY RATES INCREASED

One of the important purposes of the Act of 1920 was to secure to the carriers revenues adequate to maintain a transportation system capable of meeting the needs of the United States. Recognizing that the level of rates was entirely inadequate when the transfer to private operation was made, the railways took immediate action to secure the needed increase. As a property basis for this increase in rates, the carriers urged upon the Interstate Commerce Commission the use of the book cost of road and equipment, a figure slightly in excess of 20 billion dollars for all the roads of the country. While the railways and the Commission were still wrestling with the problem of the amount of the increase, the Railroad Labor Board advanced wages at an estimated increased cost to the railways of $600,000,000: a further upward revision of operating revenues was therefore necessary. Late in July, 1920, the Interstate Commerce Commission announced its decision. Instead of using book value in the determination of a fair return as suggested by the railways, the Interstate Commerce Commission used the figure of $18,900,000,000, reducing the book account of Eastern carriers by about 2½% and of the Southern and Western roads by more than 8%. This figure, according to a statement by Mr. Clarke, then Chairman of the Commission, was fixed primarily upon two bases, the valuation data at its disposal and the actual investment, 1907 to date, of more than $6,000,000,000 in the railway plant after the establishment of the prescribed

system of property accounts in that year; railway book cost influenced the final figure little.

For purposes of rate increases, the Commission divided the United States into four districts: of these the Eastern and Southern coincide with those districts as defined by the Commission for statistical purposes, the Western lies to the west of these and east of the Colorado Common Points, and the Mountain-Pacific extends westward to the coast. To secure to the railways the 6% return which the Commission believed should be provided upon the "aggregate value" by districts, ½% to be charged to capital account, percentage increases in the rates then in force were allowed as follows: Eastern—40; Southern—25; Mountain-Pacific —25; Western—35; and upon interterritorial movements 33⅓. An increase of 20% was also granted in passenger rates, making a minimum of 3.6 cents per mile and the same percentage of increase was extended to milk and cream traffic. A surcharge, equal to one-half the Pullman fare and payable to the railway, was also authorized upon Pullman movements. The justice of this surcharge rests upon the obviously greater cost of moving passengers in Pullman equipment than in ordinary coaches—the number of passengers per car is less and the weight of such special equipment much greater. These increases were effective August 26, 1920, and applicable to all interstate traffic.[1]

By the rate increases granted the railways under the Commission's order of July 29, it was estimated that operating income would be increased about 20% over that of the three-year test period which served as a basis for the standard return. The traffic figures employed in the computation were those for the year ending with October, 1919, a light period, and expenses were estimated upon the basis of those of March, 1920, a period of high prices. Though the New England roads faced certain problems peculiar to themselves such as a heavy less-than-carload tonnage, short hauls, and high terminal costs, they chose to join the Eastern

[1] For this important decision, see *Ex Parte 74*, 58 I. C. C. 220.

group, with the expectation of further action if such seemed necessary. Separate consideration was urged by the Southwestern carriers because of their uniformly weak financial situation, but the Commission did not see fit to designate that area as a separate group. This, then, was the adjustment made by the Commission to the end of providing adequate revenues and, through such revenues, a fair return upon railway property. However, the whole success of the adjustment depended upon variables of which the volume of traffic was the most important. That the adjustment failed to accomplish its purpose reflects in nowise upon the accuracy of Commission judgment; rather, it indicates the impossibility of prophecy in the railway field.

Although there was some general public protest against the sharp increases in rates at this time, primary protest came from certain states which had looked forward expectantly to returning, at the close of the guarantee period, to the old practice of enforcing upon the carriers scales of charges which barely escaped confiscation. Despite the fact that representatives of the National Association of Railway Commissioners had sat through the entire rate case with the Interstate Commerce Commission and had concurred in its decision, more than a score of states failed to approve the new scale of rates. Some state commissions approved the increases in freight rates without hesitancy but refused to order the application of the 3.6-cent passenger rate, holding that they were barred from so doing by 2-cent fare laws. Such a position was quite understandable, but the refusal of certain state bodies to approve the freight increases authorized by the federal Commission is difficult to explain, except as they were actuated by a provincialism and a parsimoniousness which had already greatly injured the carriers. Faced by the refusal of numerous state bodies to approve for application to intrastate traffic the increases ordered by the Interstate Commerce Commission, the railways appealed to that body for aid. In the meantime, many carriers were collecting the advanced rates under the pro-

tection of injunctions which blocked state interference, pending final determination of the question. The Commission upheld the application of the increased rates to intrastate business and, upon appeal from the order of the Commission, the right of the federal agency thus to act was upheld by the United States Supreme Court in the Wisconsin Passenger Fare case,[1] mentioned in an earlier chapter. The railways were protected against the unjust restrictions of state bodies—but their relief was gained at the cost of a considerable inroad upon the power of the state to regulate intrastate movements. An unfortunate tendency, perhaps, but seemingly unavoidable; commerce and transportation have become national in scope.

DEMAND FOR DECREASED RATES

Nothing can show the uncertainties of railway enterprise more clearly than the situation which developed soon after the higher rate level became effective. Even prior to its application the "buyers' strike" had begun and the downward movement of prices had become noticeable. For several months traffic continued to exceed slightly the figures of the preceding year, but by December the marked slump in business was clearly reflected in the decrease in car loadings. Though the decrease in prices was common to all fields, the producers of raw materials such as metals, agricultural products, and so forth, suffered most severely. Because of this sudden drop in the value of such commodities, the rate burden became serious, the more so since the scheme of percentage advances employed had increased the load more sharply upon low-grade than high-grade commodities in proportion to their ability to bear. Though few except "the opposition" had voiced a protest against the increased level of rates in August, the comparatively greater

[1] *Railroad Commission of Wisconsin* v. *Chicago, Burlington and Quincy Railway Company*, 257 U. S. 563.

weight of railway charges which resulted from the downward sweep of prices soon gave to these protestants a wide and, if ability to pay be recognized as the basic principle in rate-making, a justifiable following. Immediate action was urged to relieve the shipper of rates which were now charged to be extortionate—though it is interesting to note that, despite the fact that the farmer was only one of several groups which suffered seriously, he alone was able to enlist the deep interest of the nation's political-minded citizens.

A reduction of rates was urged upon two grounds. It was contended that a lower schedule of rates would tend to decrease commodity prices to the consumer and, by stimulating buying, increase industrial activity. It was also urged, and this reason was more widely offered, that rates were in excess of the ability of traffic to bear them and that, without regard to its influence upon railway revenues, those rates should be lower: the railway had no right to ask exemption from a portion of the burden of deflation. Though careful students of the problem of the relationship between railway rates and business conditions deny that those rates were responsible either for the business collapse or for the continued depression, and though the Interstate Commerce Commission declared that it was not convinced that the high level of freight rates had been "more than a minor factor in bringing about distress," the farmer was determined. Aided by his political power and by widespread sympathy, action could not be escaped—even the President exerted pressure upon the Commission in the farmers' behalf.

REDUCTIONS MADE BY COMMISSION AND RAILWAYS

Three cases were presented to the Commission for consideration, two of which affected important farm products. In its decision upon the first of these, in which shippers demanded lower rates upon live stock, the Commission suggested, despite its assertion that "the right of a rail-

road to charge a certain sum does not depend at all upon the fact of whether its customers are making or losing by their business," a reduction of 20% upon long hauls of live stock where the rate exceeded 50 cents per hundredweight.[1] With this suggestion the carriers complied. In the second case, in which the rates upon grain, grain products, and hay were challenged, the Commission ordered the Western carriers to reduce the charges upon wheat and hay approximately 13% and upon coarse grains by 21%. This action was justified by the regulative body upon the ground that, though present railway earnings gave no ground for a decrease, the result reflected its "best judgment as to the basis which may reasonably be expected for the future to yield a prescribed return." [2] These two decisions are estimated by the carriers to have reduced revenues in the Western district by more than $40,000,000, yet in the third case, which involved rates upon southern lumber, further reductions were made.[3]

Discovering no abatement in the demand for further rate reductions, the carriers voluntarily reduced rates by 10% upon all such agricultural products as had not already enjoyed a reduction. This action, however, failed to appease the demand for lower charges, particularly on the part of manufacturers who had thus far received no concessions. In response to continued protests the Commission instituted a general rate investigation and in May, 1922, ordered a general reduction of 10% upon all commodities upon which the same or a greater reduction had not been previously made.[4] This reduction was justified by the Interstate Commerce Commission upon the ground that it would result in increased tonnage and that this, with the decline in expenses, would enable the carriers to earn a return of 5¾% upon the aggregate fair value of their property as determined by the Commission. Although the Commission erred in its estimate with respect to return, its decision in this case is of especial importance because in it that body clearly ac-

[1] 63 I. C. C. 107. [2] 64 I. C. C. 85. [3] 66 I. C. C. 68. [4] 68 I. C. C. 676.

knowledged its responsibility for fixing a general rate level sufficiently high to provide adequately for the transportation needs of the public, present and future.

In addition to these general changes in rates, many modifications were ordered in the charges upon individual items. Rate relationships were also modified in an attempt to restore those which had previously governed. Almost without exception these modifications and changes were downward. Numerous important commodities also benefited by the voluntary action of the carriers in lowering charges. In consequence, therefore, the percentage decreases of 1921 and the following year constitute only a major portion of the concessions made by the railways to various shipping groups.[1] To the extent that the carriers felt concessions did not threaten their financial integrity, they showed a genuine willingness to ease any unusual burden.

ECONOMIC CONDITIONS AND RATE THEORIES

Perhaps one of the most interesting incidental facts which appeared in connection with the widespread demand for lower rates, particularly on behalf of agricultural interests, was the advocacy of such lessened charges because of the inability of agricultural products to bear the existing rate. During the many years preceding, when railway costs were low, the representatives of agricultural interests were insistent that charges should rest upon a basis of "cost of service." During the period of post-war adjustments, when railway costs were exceptionally high, these representatives experienced a remarkable change of heart; they now urged insistently upon the Commission a schedule of rates which

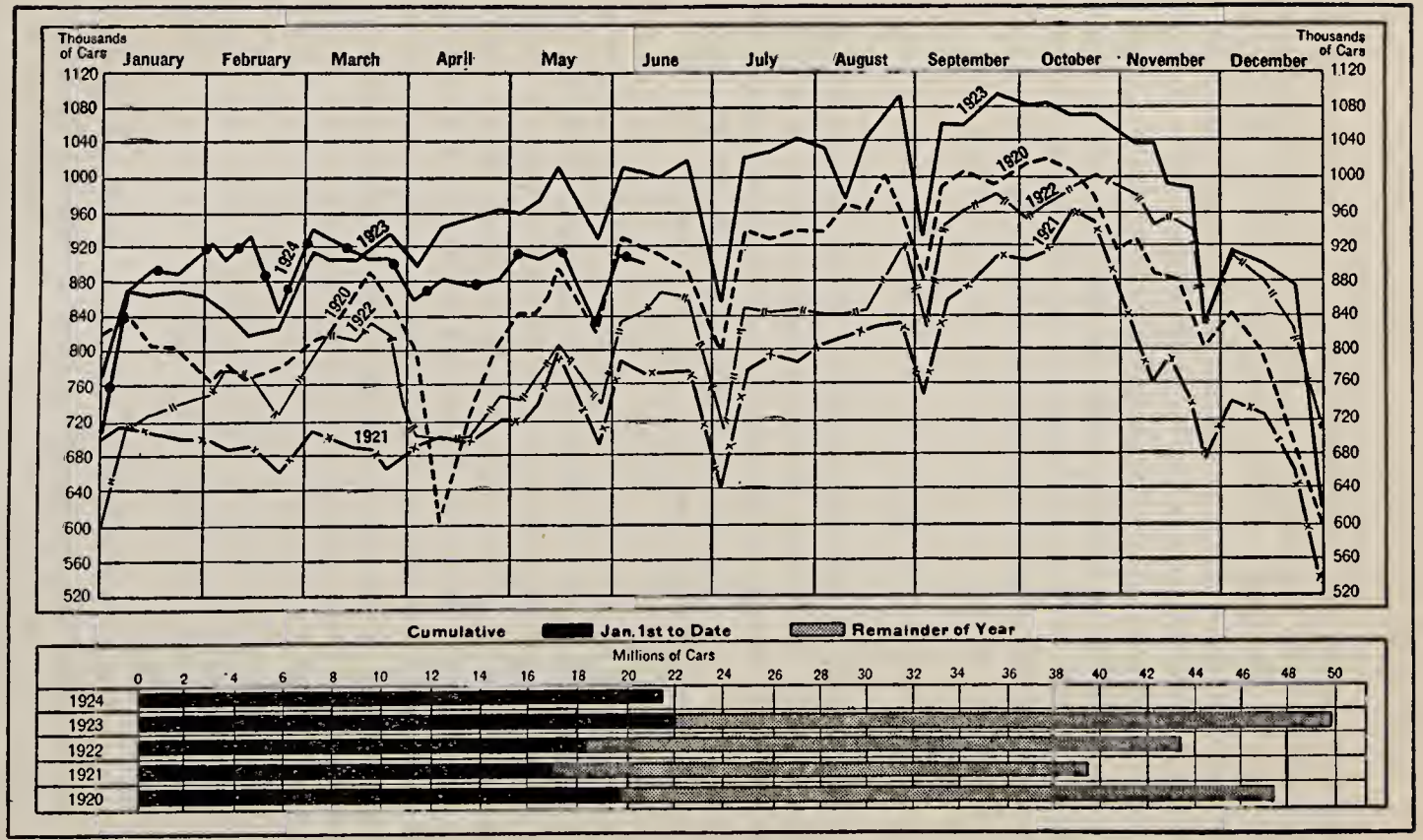
[1] In a letter written by Chairman Henry C. Hall, of the Interstate Commerce Commission, to Senator E. D. Smith, chairman of the Senate Committee on Interstate Commerce, and printed in the *Congressional Record* of June 3, 1924, appears the following statement: "It has been estimated that from July 1, 1922, to the end of 1923 the shippers and consumers of the country have paid nearly $800,000,000 less in charges for transportation of property than would have accrued if no reductions had been made below the basis established on August 26, 1920."

would recognize the inability of agricultural products to bear a high level of charges. However, despite its readiness to "temper the wind to the shorn lamb," decisions of the Commission have clearly evidenced its unwillingness to modify a fundamental policy of basing rates upon the cost of service, at the behest of these public opportunists. In this the Commission is wholly right: if cost is a sound basis when it reacts to the advantage of the shipper, it does not become unsound merely because, at another time, the carrier is the gainer.

FINANCIAL RESULTS UNDER THE ACT

Conspicuous among the purposes of the Transportation Act was that of securing to the carriers adequate revenues. The financial results of the Act are, therefore, of particular interest. In 1920 the railways were protected in the matter of revenues for eight months: for two months they were operated by the Railroad Administration and for six months they enjoyed a governmental guarantee. In consequence the railway *corporations* showed, for that year, satisfactory results. The railway net operating income of Class I roads was, on the other hand, pathetically meager. Prices were excessively high, both for labor and materials, and operation was inefficient due to several factors. Much was spent by the railways in an effort to counterbalance the inadequate maintenance of the period of federal operation, and then, too, rates were wholly inadequate until the very close of the guarantee period. In consequence of all these facts, the railways earned but ⅓% on the valuation fixed by the Commission, probably the most unsatisfactory operating result in railway history.

In 1921 the carriers suffered a sharp decline in traffic, with resultant decreased revenues, but, fortunately for them, expenses declined even more sharply. The cost of materials had dropped greatly and the expenditure for labor was cut by almost a billion dollars below the preceding year, the



Car Service Division, Am. Ry. Asso.

Figure 40: Weekly cars of revenue freight loaded—all commodities

percentage of operating revenue received by labor declining from 55.4 to 46.9. This decrease in labor costs resulted from two changes: a decrease in the rate of wages and, even more, a cut in the number of workers on the pay-roll by almost 350,000. Operating results for 1921 were, in consequence, much more satisfactory than during the preceding year, Class I roads earning 3.3% upon the tentative valuation. In the following year, 1922, earnings were further increased to 4.4%. This improved showing was primarily due again to a further decrease in costs: while operating revenues increased by approximately 1%, operating expenses declined 5%. This decrease resulted largely from a reduction of labor costs, both the rate of wages and the number of employees on the pay-roll declining somewhat. Confidence in the railways had by this time increased noticeably and many of the maladjustments from which the carriers suffered since 1920 had been reduced to a minimum.

In 1923 the railways showed a still further improvement in operating results, the average return for that year being 5.1%. In this instance the improved showing resulted from a more rapid increase in revenues than in expenses: materials prices, wage rates, and the number of employees increased operating costs by 10.9%, but the 13.1% increase in revenues left a favorable margin. However, the year was marked by an apparent increase in public hostility against the railways, despite the unusual service rendered by them and despite, too, the relatively improved situation of a particularly disadvantaged group, the farmers. For 1924 the outlook is uncertain. It seems likely that tonnage will remain approximately at last year's figure, perhaps decline slightly,[1] and certainly no increase in rates can be expected. On the other hand, labor costs are advancing and materials costs stationary. It is probable, therefore, that railway operating income will tend to decrease,[2] rather than increase,

[1] For the first half of 1924, net ton-miles have decreased by almost 10% as compared with 1923.

[2] Class I railways earned, for the first six months of 1924, at a rate of 4.7% of their tentative value.

except as greater efficiency proves an aid. For a time, adverse legislation, particularly with respect to rates, threatened, but the adjournment of Congress without action postpones, perhaps until December, 1925, any material modifications in present governmental policy. The year 1924 will be no banner one, but the refusal of Congress to permit "politics" to dictate the character of our regulatory policy is encouraging.

VARIATIONS IN EARNINGS

In brief, then, the position of the railways has steadily improved, though slowly, since the close of federal operation. Yet a detailed examination of results shows that conditions are far from satisfactory in many ways. Though the railways as a whole earned more than 5% in 1923, the distribution of those earnings as among sections and as among roads was exceedingly uneven. Valuation figures are not available for minor districts, but the book accounts are sufficiently comparable to show contrasts among the sections. An examination of Table 39 will prove enlightening.

Earnings have been even more unevenly distributed as among individual roads: many properties have earned a splendid return while others, even large ones, have barely escaped receivership; and some, with a reassuring past record, have been unable to show satisfactory results since federal control. On the whole, the situation has been such that public confidence in railway securities, which it was hoped would result from the law, is still lacking, as clearly shown by the great preponderance of bonds among the securities issued by the railways since the resumption of private operation. Yet the Act represents a step in the right direction and, with return to normal conditions, the maintenance of an adequate rate level and the accomplishment of a degree of consolidation should serve to strengthen railway credit greatly. The standing of railway securities was not destroyed in a brief time, neither will it be reestablished without years of uninterruptedly constructive action.

TABLE 39

RATE OF RETURN—12 MONTHS ENDED DECEMBER 31, 1923 [1]

REGION AND DISTRICT	Net Railway Operating Income	RATE OF RETURN (ANNUAL BASIS) ON: Tentative Valuation	Property Invest. (incl. material and supplies and cash)
New England Region	$ 21,700,487	*	2.30%
Great Lakes Region	191,235,689	*	5.36
Ohio-Indiana-Allegheny Region	212,738,663	*	4.81
Pocahontas Region	47,696,463	*	5.73
Total Eastern District (Including Pocahontas Region)	$473,371,302	5.40%	4.85
Southern District (Excluding Pocahontas Region)	$129,824,682	5.85	4.95
Northwestern Region	$112,130,410	*	3.42
Central Western Region	186,677,198	*	4.49
Southwestern Region	75,653,776	*	3.67
Total Western District	$374,461,384	4.57	3.94
United States	$977,657,368	5.10	4.47

* Not available.

NOTE: "Rate of return on tentative valuation" is computed on the tentative valuation made by the Interstate Commerce Commission in Ex Parte 74 for rate-making purposes, adjusted by the Bureau of Railway Economics to apply to railways of Class I, and to include the net amount of additions from January 1, 1920.

"Rate of return on property investment" is computed on the investment of the carriers as shown by their books.

The rates of return shown above are for Class I railways only. The corresponding rates of return for railways of all classes, 12 months ended December 31, 1923, were approximately 4.93% on tentative valuation, and 4.30% on property investment.

CONSOLIDATION: PLANS AND PROBLEMS

A second important feature of the Transportation Act was that which purposed to accomplish the consolidation of railways into "a limited number of competitive systems." Necessarily progress here has been slow, but progress has, nevertheless, been made. As a basis for its own tentative plan of consolidation, the Commission asked Professor W. Z. Ripley to suggest a grouping of the carriers. This responsibility was accepted by Professor Ripley and early in 1921 he submitted a carefully devised plan which rested upon certain general principles stated in his report.[2] These prin-

[1] Bureau of Railway Economics, Monthly Report Series No. 165.

[2] 63 I. C. C. 465.

ciples were largely accepted by the Commission in its later modification of his recommendations. In the first instance he declared that the systems organized should lie almost wholly in one or another of the traditional geographic divisions, Eastern, Southern, and Western, and he also held that the Transcontinental and Southwestern properties should, in the main, be treated separately. Access to the Gulf he considered non-essential to all Western groups, but he did pivot the Eastern and Western properties at Chicago and St. Louis and Southern at Atlanta. Upon the basis of the widely recognized fact that railway profits are derived from long-haul movements, and that terminal costs and assembling costs incident to such long-haul business often occasion loss, Professor Ripley endeavored to so group the carriers in the various sections as to balance these features. Because of the vital importance of free access to large centers, provision was made for the independent operation of certain terminal properties and also of "bridge" lines between particular districts. In the consolidations proposed, mileage received secondary consideration; volume of traffic and a proper balance between trunk lines and feeders were held more important. Upon the basis of the recommendations made by Professor Ripley, the Commission drew up its tentative plan[1] and instituted hearings upon the same.

[1] In 63 I. C. C. 455, the following systems were suggested, certain of which are alternatives:

1. *New York Central*—Western Maryland—Boston and Maine, and so forth.
2. *Pennsylvania*—Toledo, Peoria and Western, and so forth.
3. *Baltimore and Ohio*—Reading—New York, New Haven and Hartford, and so forth.
4. *Erie*—Delaware and Hudson—Delaware, Lackawanna and Western—Wabash (east of Mississippi River), and so forth.
5. *New York, Chicago and St. Louis—Lehigh Valley*—Toledo, St. Louis and Western—Lake Erie and Western, and so forth.
6. *Pere Marquette*—Ann Arbor—Detroit, Toledo and Ironton.
7. New York, New Haven and Hartford—Boston and Maine—Maine Central, and so forth. This a *New England* group.

7a. Same as 7 with Delaware and Hudson—Delaware, Lackawanna and Western—Buffalo, Rochester and Pittsburgh, and so forth. This the *New England–Great Lakes* group.

In these hearings the Commission has accumulated a tremendous mass of data amounting, even before their close, to "nearly 50 volumes, containing over 11,000 pages of testimony and 630 exhibits, most of them voluminous." [1] At first the carriers seemed to believe that their sole function was to criticize the tentative plan offered or the principles upon which it rested. But it soon appeared that the Commission desired them to contribute much in the way of concrete information upon which a final decision might properly be based.[2] To that end the carriers have furnished the Commission a great mass of material which will be of inestimable value in reaching a final decision. In these hearings opposition of various sorts to the plan as outlined has been apparent. In some instances the opposition has been to the nature of the plan itself, certain alignments proving

8. *Chesapeake and Ohio*—Virginian.
9. *Norfolk and Western*—Toledo and Ohio Central.
10. *Southern* and subsidiaries—Alabama and Vicksburg.
11. *Atlantic Coast Line*—Atlanta, Birmingham and Atlantic—Florida East Coast, and so forth.
12. *Illinois Central*—Seaboard Air Line—Tennessee Central, and so forth.
13. *Union Pacific—Chicago and North Western*—Wabash (west of Mississippi River), and so forth.
14. *Chicago, Burlington and Quincy—Northern Pacific*—Chicago Great Western—Minneapolis and St. Louis, and so forth.
15. *Chicago, Milwaukee and St. Paul—Great Northern*—Chicago, Terre Haute and Southeastern—Duluth, Missabe and Northern, and so forth.
16. *Atchison, Topeka and Santa Fe*—Colorado and Southern—Denver and Rio Grande—Western Pacific, and so forth.
17. *Southern Pacific—Chicago, Rock Island and Pacific*—El Paso and Southwestern—San Antonio and Aransas Pass, and so forth.
18. *St. Louis–San Francisco—St. Louis Southwestern—Missouri, Kansas and Texas*—Chicago and Alton, and so forth. Called Frisco–Katy–Cotton Belt system.
19. *Chicago and Eastern Illinois—Missouri Pacific*—Kansas City Southern—Kansas City, Mexico and Orient—Texas and Pacific, and so forth. Called Chicago–Missouri Pacific System.

Names in italics give title to the system.

[1] *Thirty-seventh Annual Report,* Interstate Commerce Commission.

[2] Ripley, W. Z., "Geographical Limitations of Consolidated Systems," *American Economic Review,* Vol. XIV, No. 1, Supplement, p. 52.

unsatisfactory to both parties concerned; in other instances the opposition has grown out of the unwillingness of certain existing groups to face the disruption which the Commission plan would involve—such is the objection of the Hill roads. A third objection, not so much against the specific groupings suggested by the Commission as against the whole principle of consolidation, comes from business interests at intermediate terminals which would lose much of their importance if connecting lines were merged.

In the course of these hearings the diversity of judgments concerning the question of consolidation has been clearly in evidence. On the whole, the railways have supported the principle of voluntary consolidation and in most instances prefer such consolidation to take place in accordance with no fixed plan; they wish, rather, to consolidate along lines of their own choosing, subject only to the approval of the Commission. Others, however, are quite willing to accede to the principle of a set plan, always provided, of course, that such plan be a suitable one. The public, on the contrary, seems to feel that voluntary consolidation will fail to serve its purpose and that compulsion should therefore be employed. Prophecy is uncertain, yet it appears that the probable policy will be consolidation in accordance with a set plan, with the patient use of voluntary action. As an incentive to consolidate, the application of the Recapture clause should prove effective—it is obvious that excess earnings from one property may as well be utilized in the development of another, as paid to the government. Yet, though the voluntary principle is likely to rule, compulsion will lurk closely in the background: if public support of the principle of consolidation continues, the railways must choose between compliance with the law and a strengthened movement toward government ownership.

NOTE: References will be found at the close of Chapter XXXV.

XXXV

THE OPERATION OF THE TRANSPORTATION ACT OF 1920: LABOR AND MINOR PROVISIONS

The wage increase of 1920. Abrogation of the national agreements. Decreases in wages ordered. Basis of determination of a "reasonable wage." The shopmen's strike: early action; "Daugherty injunction"; shopmen defeated. Trend of wages since 1922. Important problems faced by the Labor Board. Evaluation of the work of the Board. Regulation of security issues and construction and abandonment. The Recapture clause. Division of joint rates: New England and "Orient" cases. Regulation of service. Ungrounded criticisms of the Transportation Act: guaranteed return; validation of "watered stock"; railways escape the burden of deflation; unreasonable level of rates. Considered criticism relative to jurisdiction, machinery for settling labor disputes, and consolidation. Evaluation of the Transportation Act.

A THIRD important and novel feature of the Transportation Act is that dealing with the settlement of labor disputes, and the history of the operation of that portion of the Act justifies careful study. Though a detailed description of its operation cannot be given, the principal developments during the past four years will be indicated.

THE WAGE INCREASE OF 1920

Scarcely had the railways been returned to private operation when the outbreak of numerous local and outlaw strikes brought home to the carriers the extent of labor unrest. Of these labor outbreaks the most widespread and important was the "outlaw" switchmen's strike in April, 1920, which spread rapidly from Chicago, where it first broke out, and seriously embarrassed the movement of traffic for a considerable period. Urged by the impatience of labor, as evidenced by these strikes, and by the insistent demand of those remaining at their posts, the Railroad Labor Board,

organized about the middle of April, immediately set about an investigation of the wage situation. That railway labor might be somewhat reassured in the face of the necessary delay incident to an ascertainment of sufficient facts upon which to base a decision, promise was made that all increases granted should be retroactive to May 1. But once the investigation was instituted, the Board found the carriers urging upon them the abrogation or thoroughgoing revision of the national agreements, which had been signed by the Railroad Administration toward the close of the period of federal control. The new body thus found itself facing demands from the two groups directly concerned for action along quite different lines. However, because of the greater pressure for an upward revision of wages and the long delay which labor had already endured none too patiently, the Board refused to consider at that time any modification of the national agreements and confined its decision to matters involving wages.

In its effort to arrive at some formula by which a just and reasonable wage might be determined, the Railroad Labor Board was no more successful than many other agencies have been. After giving weight to the conditions laid down by the Act, among which hazard, skill, and responsibility were most heavily stressed, the Board gave consideration primarily to the cost of living, which had advanced sharply since previous wage increases. Wherever such comparisons could be secured, wages of railway workers were compared with those in the commercial field, too, though the Commission also gave weight to the greater steadiness of employment of railway workers. But, all in all, it appears that the increase was urged by the workers largely upon the basis of higher living costs and was granted by the Board upon proof of such an increase, though the economist clearly recognizes that the reasonableness of an *existing* wage cannot be settled upon such a basis: changes alone can be predicated with any degree of accuracy upon price movements. The increase granted by the Board in its

decision of July 20, 1920, approximated 22% above the wages authorized by the Railroad Administration, and increased the labor cost of rendering transportation service by approximately $600,000,000, according to Board estimates. This large increase, effective throughout four months of the six months' guarantee period while increased rates were effective for but one month of that time, accounts in no small measure for the heavy deficits incurred by the government under that guarantee.

ABROGATION OF THE NATIONAL AGREEMENTS

The promise given by the Labor Board that it would examine the national agreements when wage questions had been answered was redeemed by the institution of hearings early in January, 1921. In mid-April of that year, a decision was published under which it ordered that all national agreements should terminate July 1, following, and that, in the meantime, conferences should be held between the carriers and their employees for the negotiation of new and reasonable systems of rules. Should the employees occasion undue delay, these agreements were to terminate for the guilty groups on July 1, while if the carriers offended, they might be continued until such date as fixed by the Board; in case of disagreement, the Board would formulate rules to control after July 1. To govern the negotiation of these new rules the Board laid down certain definite principles which gave, in considerable detail, the conditions with which those rules should accord.

DECREASES IN WAGES ORDERED

When traffic and revenues dwindled late in 1920, the carriers immediately opened negotiations with their employees looking toward a reduction of wages. Failing to reach agreements, however, appeals were made by the railways generally to the Labor Board, asking that reductions

in wages to the level of the period prior to May 1, 1920, be made. This request was based upon two grounds, the financial inability of the carriers to pay the wage scale then in force and the reasonableness of a reduction in view of the declining cost of living. After an extended hearing the Board ordered a reduction of approximately 12% on all roads and for all classes of labor. The railways, disappointed in this decision, which promised to wipe out all but $400,000,000 of the increase occasioned by the advance as of May 1, 1920, indicated that another appeal would be made to the Labor Board if the employees refused to accept yet further reductions.

In the meantime, many of the labor organizations had polled their membership upon the question of a strike to resist the reduction already ordered. In all cases the vote was overwhelmingly in favor of resistance and, with this "vote of confidence" to support them, the train service brotherhoods ordered a strike for September 30, 1921. However, an adverse public opinion which was equally overwhelming, the failure of other railway labor groups to join the movement, and the declaration by the National Administration that the whole weight of governmental authority would be forthcoming in support of the decision of the Labor Board, as well as the diplomacy of that Board itself, resulted in a withdrawal of the order. Yet the only concession made the workers was by the Board and it merely assured the workers that the preference it expected to give to hearings involving disputes over rules would postpone for many months the entertainment of any new proposals for wage reductions. The rescinding of this strike order was a notable victory for public opinion in its effort to regulate the performance of railway labor.

Impelled by the sorry financial results of 1921, the railways again sought reductions in the wages of certain groups early in 1922, justifying their demand upon two grounds: the payment of lower wages to workers of like skill in competitive industry and a further decline in the cost of

living. Despite bitter opposition on the part of the workers, the Board ordered, late in May and in early June, further reductions in pay for a considerable group of employees. The pay of maintenance-of-way and railway-shop laborers was reduced slightly more than 13%, of skilled shopmen by 5 to 9 cents an hour, of clerical and station workers 3 to 4 cents an hour, and of certain other groups from 2 to 6 cents an hour. In making these reductions the majority opinion held that these wages, as reduced, were still such as to give the worker a greater purchasing power than the wages received by him after the sharp increase in 1920.

BASIS OF "REASONABLE WAGE"

Although it had been very apparent in the earlier decision ordering a general reduction of wages that the labor members of the Board would refuse to approve any downward revision of pay, the comments of that group upon the reductions effective July 1, 1922, were bitter; in fact, they arraigned the majority members of the Board in a manner most unbecoming to men charged with the exercise of a semijudicial function. In presenting the case of the workers to the Board, emphasis had been placed upon the inadequacy of the wage then being paid to provide an annual income sufficient to give the "hypothetical family of five with three dependents below 16 years of age," supported by a single wage earner, "the living wage" as fixed by the United States Bureau of Labor Statistics for governmental employees in Washington. This standard was accepted without reservation by the labor members of the Board, but the railway and public members united in calling attention to the fact, in connection with this and later decisions, that such a basis of payment is impossible in American industry and is, furthermore, predicated upon an inaccurate basis of fact. Should such a basis of wage payment be accepted, the wages of labor in the United States would exceed, by many billions of dollars, the total annual income of the

nation. Furthermore, the 1920 census shows that the typical family has only 4.4 persons, that the average number of dependents below 16 years of age is 1.4, and that the average number of male workers for each family is 1.36. To the impartial student it is apparent that the representatives of railway labor, both upon the Board and off it, failed to take a broad public point of view in their demands.

THE SHOPMEN'S STRIKE

Labor's failure in this particular was further emphasized by its attitude toward the decisions of late May and June in 1922. Immediately upon their publication, strike votes were taken by most of those groups affected and in every instance the proposal to strike received almost unanimous approval. Realizing the strategic weakness of the position of unskilled and semiskilled workers during a period of unemployment, the leaders of the maintenance-of-way group and the clerical and station forces refused to call a strike. The attitude of the rank and file among shopmen was so defiant, however, as to force the leaders of that organization to order their men out July 1. Four points were given as justifying this strike order: the decrease in wages, the modification by the Labor Board of certain restrictive rules which had operated for the benefit of the workers, the policy of "contracting out" shop work which was followed by certain roads, and the failure of the railways to establish Adjustment Boards organized upon a national scale.

Upon the date set, the workers quit their posts throughout the entire United States: there were few shops in which work was not effectively stopped. The shopmen seemingly expected an early victory, likewise the railways. Within a short time, however, it became apparent that the struggle would be long drawn out and bitter. After a short delay, the railways of the country generally set a final date for the return of the shopmen if they desired to protect their seniority and pension rights. Their failure to return only

increased the necessity of a workers' victory. After about a month President Harding intervened with a proposal that carriers and employees alike obey all orders of the Board, that suits arising out of the strike be withdrawn, and that the strikers be reemployed with seniority rights unimpaired. This proposal the shopmen, realizing now the error of the strike, agreed to accept, but the railways rejected that portion calling for the restoration of seniority rights. Later the President proposed that the question of seniority be left to the determination of the Labor Board. The railways acceded to this proposal with certain reservations, but the employees rejected it.

THE "DAUGHERTY INJUNCTION"

Violence to property and to persons by the strikers and the influence of this violence upon interstate commerce impelled the United States to secure, on September 1, a temporary injunction against the strikers which greatly restricted their action. After hearings in which a tremendous volume of evidence was introduced to show the lawlessness of the striking shopmen, the temporary injunction was continued. On May 1, 1923, hearings were begun to make this now famous "Daugherty injunction" permanent. At that time union counsel withdrew from the case and in July the injunction was made permanent, though occasion for it had largely passed. In commenting upon the situation Judge Wilkerson declared, "This strike was more than a controversy between employer and employees. Its manifest purpose, as shown by the evidence, was to cripple and destroy interstate commerce and to create by this assault a public opinion hostile to the decision of the Labor Board. The primary purpose of the combination, therefore, is unlawful and it may not be carried out by means that otherwise would be legal." He also justified interference upon the basis of the lawlessness of the strikers, holding that, "to undertake to throw around the so-called 'peaceful' words of those engaged

in this violent assault upon the commerce of the nation the protection of the doctrine of free speech and peaceable assembly, is a perversion of those great constitutional guaranties."

FAILURE OF THE STRIKE

Long before the injunction against the strikers had been made permanent, however, the shopmen had met defeat. Despite their early refusal to settle the strike except upon a national basis, the shopmen negotiated separate agreements in September, 1922, with a number of roads upon the basis of the Willard-Jewell treaty. This called for the acceptance of the wage scale fixed by the Labor Board, the reemployment within 30 days of all strikers not proved guilty of actual violence, and the settlement of the question of seniority by negotiation after return to work. Other roads, largely successful in filling the places of strikers, organized company unions and refused to negotiate further with the shopcrafts organization, though the strike technically continued. After a considerable period the union compromised with certain roads, surrendering everything but the reemployment of the strikers as places became vacant; upon still others a complete surrender was finally made. In short, the shopmen lost their strike and, on the whole, saved little more than the wreckage of their organization. Supported by public opinion as the Labor Board was, the shopmen's defiance was a serious tactical error, the magnitude of which none now realize better than they. Its cost to them in wages and in standing was high and its cost to the railways and to the public in terms of money outlay and service was also great. Two quite different gains, perhaps, have resulted. Railway labor will be less ready in the future to defy public authority and to flaunt public opinion. And of almost equal importance is the experiment in cooperation between the Baltimore and Ohio and its shopmen. Intent upon proving the utility of the organization, and perhaps for other reasons, the shopmen have undertaken by

various means—even the use of the usually condemned "efficiency expert"—to lower costs and increase output. To date, interesting results have come from the attempt; certainly the movement contains much of promise to all.

RECENT TREND OF WAGES

Even before the decisions of the Labor Board in 1922 ordering a cut in wages July 1, business conditions had begun to improve. This improvement continued and prices moved upward sufficiently to justify an increase in wages to maintenance-of-way and shop laborers in October; in 1923 a further increase was received by the same group through negotiation and by appeal to the Board. The clerical and station forces also received increases and many agreements have been negotiated during the past 15 months between the employees and the carriers which have given to other groups of workers—train service, shop, and so forth, higher rates of pay. In short, since the autumn of 1922, the tendency of railway wages has been slowly, though steadily, upward.

IMPORTANT PROBLEMS FACED BY THE BOARD

In the performance of its work the Railroad Labor Board has been faced by several difficult questions, none of these more important than that of jurisdiction. In an effort to find relief from the higher costs of work done by organized shopmen working under carrier supervision and subject to the jurisdiction of the Board, perhaps for other reasons, too, several railways adopted the practice of "contracting out" their work, this practice extending, in extreme instances, even to the maintenance of way. This policy was strongly attacked by railway labor organizations and in their opposition they were upheld by the Labor Board, which insisted that such action represented an unjustifiable attempt to evade the provisions of the Transportation Act. The con-

demnation of the Board, however, has not been sufficient in all cases to eliminate the practice, certain properties continuing it regardless of orders and reprimands.

Another question of jurisdiction arose with the Pennsylvania, which decided to substitute company unions for the regularly organized railway labor unions. Condemned by the Board because of certain of its practices, the Pennsylvania secured an injunction against the publication of an adverse statement by that body but, upon further appeal, the Board was upheld by the United States Supreme Court. Nevertheless, the Pennsylvania determined to persist in its policy and so notified the Board, which then published a statement in June, 1923, strongly censuring the road for its labor policies and for its attitude toward public control as exercised by the Board. The most recent challenge of the Board's jurisdiction was offered by two railway labor organizations late in July, 1924. These Brotherhoods sought an increase in wages for all enginemen in Western territory; the Western carriers, through their Managers' Committee, asked for the revision of certain rules. A deadlock resulted and the Labor Board assumed jurisdiction. When summoned to appear before the Board, the representatives of labor refused to testify, contending the Board had, as yet, no right to intervene, since the *individual carriers* had not, at that time, sought, and failed, to effect agreements with the national organization. Such individual conferences the railways refused to grant, however; by dealing through the Managers' Committee they hoped to avoid what occurred in Eastern territory: there the enginemen, concentrating upon the New York Central, obtained their demands and, with that as a lever, forced weaker roads to grant the increase asked. It seems probable that the Board will seek an order from the District Court to compel the union officials to testify; otherwise, or if denied, the Board will be shorn of much of its power and promise. In its assertion of jurisdiction in this case, incidentally, the Board was unanimous in its judgment.

Another problem which faced the Board was presented most conspicuously in the case of certain weak properties which sought approval of a lower-than-standard wage scale upon the ground that their financial condition made it impossible to pay the regular rates. In this matter, despite the protests of the labor members of the Board, that body showed its capacity for dealing with facts as they found them: it authorized, in numerous instances, lower-than-standard rates declaring that, even for the worker, employment at reduced rates was preferable to no job at all.

EVALUATION OF THE WORK OF THE BOARD

The Railroad Labor Board has had an "up and down" experience since its organization. Early wage increases brought it the approval of labor and the disapproval of the carriers; later wage decreases reversed the attitude of these two groups. At one time it had so far lost the confidence of the public that President Harding felt constrained to suggest to Congress its abolition. Yet an impartial evaluation of its work seems to justify a favorable verdict. Though it has failed to control railway policy in several instances and though it was unable to prevent the shop strike, its decisions have been uniformly sound and it now commands widespread respect on the part of the public, and its decisions are very generally observed by the parties directly concerned. Called upon to function during a tremendously difficult period of readjustment, the Board found it impossible to avoid many difficulties and sharp conflicts, indeed, to escape condemnation at the hands of many; yet, when the magnitude of the difficulties which have confronted it is considered and its actual accomplishments realized, no adverse verdict can be entered. The Board, though it has not functioned perfectly, has served a tremendously helpful purpose during the past four years by reducing to a minimum labor conflict in the railway field. It is doubtful if any other plan would have succeeded as well.

SECURITIES, CONSTRUCTION AND ABANDONMENT

In commenting upon the operation of the various provisions of the Transportation Act, certain other features deserve mention. Under the power given it by that Act, the Interstate Commerce Commission has supervised the issuance of securities with little difficulty or friction; indeed, the spirit of administration has been such as to win commendation from both the railways and the public. The control of construction and abandonment has raised more difficult problems. In its application of this section the federal Commission has sought the cooperation of the state commissions: many of the hearings have been held for it by these state bodies and, in the majority of instances, the recommendations made have received federal approval. Despite efforts to handle this problem by cooperation, conflict has nevertheless developed in several instances. In passing upon cases brought before it, the Supreme Court has held that the Interstate Commerce Commission may authorize abandonment only as to participation in interstate traffic; intrastate service is subject to state jurisdiction.[1] Upon extensions the line has not been so clearly drawn, but it is probable federal control will extend farther there.

Several important construction and abandonment cases have been handled by the Commission and in connection with them certain general principles laid down: an extension will be approved only as the carrier establishes its ability to render the added service, and no project will be approved where adequate traffic does not appear to be in prospect. In abandonment, public interest must be protected. Yet, where the future seems to offer nothing but continued loss or where the area may secure reasonable service from other existing lines, abandonments have, in general, been approved. It is interesting to note that, for the first time since the Commission exercised power in this field, authorizations for construction exceeded abandonment in 1923.

[1] *State of Texas* v. *Eastern Texas Railway Company*, 258 U. S. 204.

THE RECAPTURE CLAUSE

The application of the Recapture clause to the excess earnings of such properties as have been fortunate enough to enjoy them during the few years past, has been delayed by the absence of valuation data upon which the Commission might base its orders for payment to the government. Indeed, it is only recently that the first payments have been made into the contingent fund and these are but tentative, based upon the carrier's own valuation of its property. However, there is no doubt but that the Commission expects to apply this clause rigidly as soon as valuation data are available, both as to past and future earnings under the Act. Its determination to do so has received full legal sanction in the decision of the United States Supreme Court in the Dayton–Goose Creek case.[1] This small intrastate carrier, deriving a major portion of its earnings from intrastate business, sought to enjoin the Commission from ordering payment to the government under the Recapture section of the Transportation Act. Upon appeal to the United States Supreme Court from a decision adverse to this and 19 other more important carriers which had intervened, that high tribunal affirmed the judgment of the lower court, holding the section constitutional. The Supreme Court declared that no common carrier can maintain title against the public to more than a reasonable return and, if an excess is received, the seizure of a portion thereof by the government does not constitute the taking of property without due process of law. Furthermore, it held that the application of the Act to both inter- and intrastate commerce constituted no invasion of state rights. In general, the court stated that this clause was an essential part of a general plan to provide adequate transportation facilities for the United States and, as such, represented sound public policy. The rigid application of the Recapture clause promises, within a few years, to make the contingent fund of some importance.

[1] 44 Supreme Court Reporter.

DIVISION OF JOINT RATES

The provision of the new Act which empowered the Interstate Commerce Commission to determine the division of joint rates in accordance with, among other things, "the amount of revenue required to pay their respective operating expenses.... and the importance to the public of the transportation services of such carriers," was first invoked by that body to assist the New England carriers. The 40% rate increase in August, 1920, was inadequate for them and proceedings were instituted immediately to secure increased divisions from the Trunk Line railways on interline traffic. When the carriers failed to accomplish results through negotiations opened at its suggestion, the Commission ordered that, upon all joint class rates and joint commodity rates divided upon the same basis as the class rates, the proportion of the New England lines should be increased by 15%.[1] This order was attacked by the Western lines, but it was upheld by both the lower court and the Supreme Court, in each case without a dissenting opinion. In its decision supporting the order of the Commission, the Supreme Court viewed the Act in its broad aspects and declared there could be no question of the right of the Commission to deal with the problem in the manner in which it had, in the absence of allegations that the divisions ordered resulted in confiscatory rates. "What the Commission did was to raise the additional revenues needed by the New England lines, in part, directly, through the increase of all rates 40% and, in part, indirectly, through increasing their divisions on joint rates.... It is not true, as argued, that the order compels the strong roads to support the weak. No part of the revenues needed by the New England lines is paid by the Western carriers. All is paid by the community. . . . The special needs of the New England lines were at all times before the Commission. That these needs were met by two orders, instead of one, is not of legal significance."[2]

[1] 66 I. C. C. 196. [2] 261 U. S. 184.

The power of the Commission to prescribe the division of joint rates was also utilized by that body in an effort to assist certain individual properties which were in sore financial straits. In 1922 connecting lines were ordered to pay to the hard-pressed Kansas City, Mexico and Orient Railway increased divisions upon all interline traffic.[1] This order was at once challenged and, less than a month after the Supreme Court upheld the increased divisions of New England carriers, the Orient order was enjoined by the District Court of Kansas, a two-to-one decision by the sitting judges. Declaring that the Commission lacks power under the Interstate Commerce Act as amended to order new divisions except as the existing divisions are unjust or unreasonable, the court maintained that the evidence before the Commission was not sufficient to support the issuance of the order in question.[2] From the judgment of the lower court the government has appealed to the Supreme Court, where the case now awaits decision. What this decision will be is uncertain though it appears to the layman that the lower court, in questioning the power of the Commission to act as it did, gave little regard to the opinion of the Supreme Court in the New England division's case and also arrogated to itself the right to question the soundness of the Commission's decisions upon matters of fact; certainly the lower court has taken a legalistic, in contrast to a social, point of view of this portion of the Act. However, it seems quite possible that the order of the lower court may be reversed and the Commission's action upheld. If not, the Commission will be deprived of a needed power; if so, that agency will have in its hands an effective instrument for succoring needy but deserving carriers, and a weapon which will prove a splendid "encourager" of consolidation.[3]

[1] 73 I. C. C. 319.

[2] 288 Federal Reporter 102.

[3] Since the above was written the United States Supreme Court, in Case No. 456, has upheld the lower court upon a technical point of evidence. However, the conclusions of the court concerning the scope of the

(*Footnote continued on the following page.*)

THE REGULATION OF SERVICE

The service powers granted to the Interstate Commerce Commission in 1920 were extensive, but, except in that year when the carriers were readjusting themselves to private operation while under a heavy traffic load, no positive action to protect shippers has been necessary. Since that time the American Railway Association, through its car service division, has met, in cooperation with the Interstate Commerce Commission, all problems which have arisen. In fact, under private initiative the railways were successful in 1923 in rendering a hitherto unequaled transportation service. This success was due to several factors: the improved condition of equipment, new equipment placed in service, and a conspicuous increase in mileage per car-day and tons per loaded car. In commenting upon the 1923 results the Commission declared, "Three noteworthy facts have characterized the transportation history of the current year: (1) The unprecedented volume of traffic handled; (2) the concurrent transformation of a car-shortage condition into one of car surplusage; and (3) an exceptionally equitable distribution of available equipment over territory in which the large traffic movements originate." [1]

A recent step of particular interest taken by the carriers with the approval of the Interstate Commerce Commission, looks toward the establishment in all sections of the United States of regional advisory boards which are to represent all groups of shippers and the state commissions in the particular area. The purpose of these boards is twofold: to discover and harmonize differences between shipper and carrier, and to enable the carrier better to anticipate and, therefore, to meet the demands which are likely to be made

Commission's authority, under the law and in accordance with proper procedure, is wholly favorable. Thus the position of the Commission seems to be stronger than it was prior to the decision. Further action, free from technical errors, may perhaps be accepted by the carriers without protest in this case, since the power of the Commission to increase divisions to benefit a single property is clearly affirmed.

[1] *Thirty-seventh Annual Report,* Interstate Commerce Commission.

upon it for service. Such boards have functioned effectively in European countries and should be a distinct asset to American railways.

In connection with questions of service, the problem of state versus federal control has again arisen. Like Banquo's ghost, this problem intrudes at all times and in all places. In two significant decisions, the one denying the Missouri Public Service Commission the right to stop an interstate train at a local station, and the other the right of the California Railroad Commission to order the construction of a costly union station at Los Angeles which would serve mainly interstate traffic, the Supreme Court has limited the scope of state action even in the service field. To these cases the Interstate Commerce Commission has not been a party, however: in the administration of service questions this federal body itself has shown a conciliatory spirit, seeking at all times to avoid intrusion and to increase cooperation. And it is along the line of cooperation that this question will undoubtedly be worked out.

UNGROUNDED CRITICISMS OF THE TRANSPORTATION ACT

No discussion of the Transportation Act is complete without a consideration of the criticisms which have been made of the various provisions of that Act and an evaluation of those criticisms. Attacks upon the Act fall roughly into two groups, those which rest upon a misrepresentation or misapprehension of its terms, and those which proceed from a careful examination of its provisions, and honest differences in judgment concerning them. Of the criticisms which fall within the first group, the one most often heard, yet with least foundation of fact, is that "the Esch-Cummins Act guarantees the railways a fixed return." This criticism had, perhaps, a tenuous excuse for being because of the continuance of the guarantee for six months and the statement of the Act that the Commission should so fix rates for the first two years of its operation as to yield a 5½ or 6%

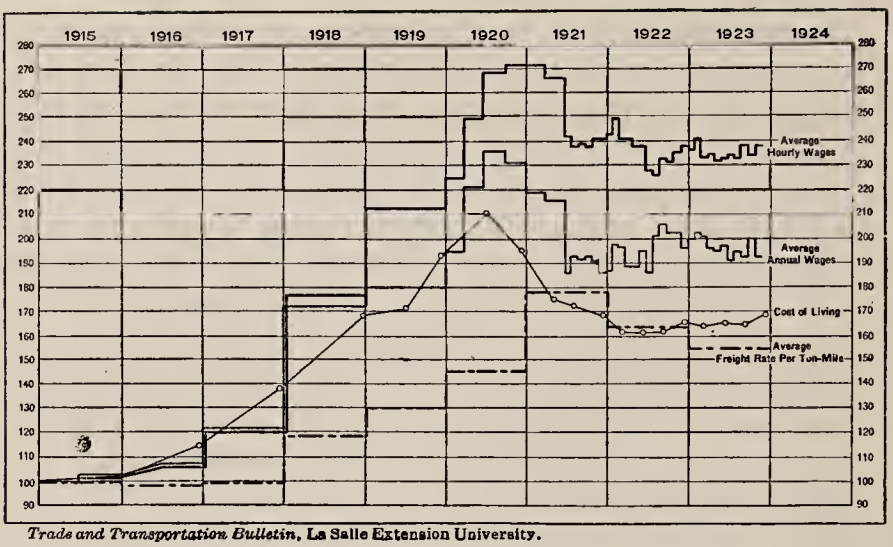
return. However, the six months' guarantee soon passed and even the statutory obligation of the Commission has long since expired, though during its life it constituted nothing more than a legislative definition of the common-law "reasonable return." Since March 1, 1922, however, there has been not even a crutch upon which the guarantee allegation may lean. Yet, again and again in the public statements of even members of Congress and in press articles, this misrepresentation has appeared. Its continued assertion must be ascribed to inexcusable ignorance of fact or to malicious purpose: in either case those who make it show themselves unworthy of public confidence.

A second criticism which falls within the first group declares that by this Act "billions of dollars of watered stocks have been validated." The inaccuracy of this statement is clearly evident when attention is directed to the Act itself which states that the valuation, upon which rates shall be based, shall be that fixed in accordance with the Valuation Act of 1914: if the tentative figure of $18,900,000,000 proves to be too high when all data are complete, the final valuation figure can, and will, be lowered. Though the probability of a reduction is small: the final and judicially approved "aggregate value" will be more likely to exceed than to fall below that figure. To complain against this tentative valuation of the Interstate Commerce Commission because it rests largely upon cost-of-reproduction-less-depreciation, rather than historical cost, is quixotic to say the least, since the method employed by the Commission is that which has been almost universally accepted by regulative bodies and invariably upheld by the courts; for even such a progressive body as the Wisconsin Railroad Commission it has served as a fundamental basis of valuation for almost a score of years. Though were the valuation of the railways reduced by at least a third, as the "opposition" contend it should be, rates could be not lowered by as much as 10%; operating costs, which constitute the major expense of railway service, are in nowise affected by property value.

Another criticism of the Act, though one which, at most, could properly be of the administration of the Act, is that it enabled the railways to escape their share of the suffering which resulted from post-war deflation. Even though such an escape had been the lot of the carriers, its inequity would not be so clear: with rates lowered during prosperous years to prevent the carriers from earning more than a reasonable return, charges must be maintained during bad years if an *average* fair return is to be enjoyed. And such is the common-law right of a regulated enterprise. However, the facts show that the railways actually have borne a heavy burden during the period of deflation. From September 1, 1920, the close of the guarantee period, to December 31, 1923, the railways failed by almost $1,100,000,000 to receive that amount which would have constituted, upon the basis of Commission figures, a "fair return upon a fair property value." In short, during those 40 months, the railways received but 70% of the earnings to which they were reasonably entitled. Yet during this 40-month period the Commission sought to secure an adequate return for them—which shows clearly the impossibility of the railways' earning an adequate return during lean years. A reasonable solution of this problem would seem to be permission to earn in excess of a reasonable return during prosperous years so that rates need not be advanced too sharply when business suffers a collapse. Indeed, by higher earnings during "fat" years it might be possible actually to lower rates during a depression, thus assisting somewhat in stimulating recovery.

THE COMPLAINT OF AGRICULTURE

A final charge made against the Act and one closely related to the preceding criticism, is that it caused the public to be burdened by extortionate rates. This criticism has emanated largely from the political and editorial spokesmen of the farmers. Since the rate is high or low in relation to the value of the product offered for shipment, rather



Trade and Transportation Bulletin, La Salle Extension University.

Figure 41: Railway wages, freight rates, and cost of living, 1915-1923 (1915 = 100%)

than upon any absolute scale, an examination of the data given in Table 40 will be of particular interest.

These figures show that during 1921 and 1922 railway charges were distinctly above not only the prices of farm products but also the cost of living. But the major reason for that excessive figure is clearly apparent: it was labor which profited conspicuously during those years. The average annual income of railway workers from 1913 to 1916 increased by 17% and the hourly wage from that date forward increased by the percentages shown in Table 40.

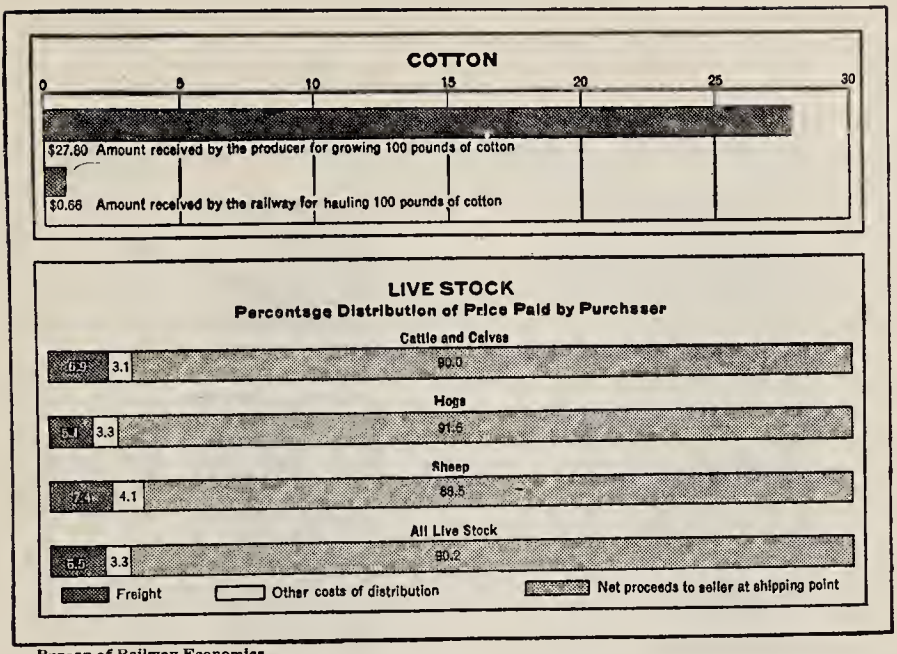
TABLE 40

MOVEMENT OF RELATIVE PRICES, 1920-1923

*(1913 = 100%)**

Year	Cost of Living	Farm Products	Railway Rates	Hourly Wages Railway Labor
1920	226	218	146	239
1921	147	124	177	236
1922	149	133	164	210
1923	154	141	155	†

* Hourly wages based on 1916. Figures not available prior to that year.
† Figures not yet available. Will be slightly above 1922 because of minor wage increases in 1923.



Bureau of Railway Economics

Figure 42: Freight rates as an element in cotton and live stock prices

And it is also interesting to note that the 1913 ton-mile average stood 14% *below* the average for 1890-1899, inclusive, while the prices of farm products in 1913 stood 56% *above* the average for the period named, the cost of living itself in 1913 being 137% of the 1890-1899 average. From these figures it is obvious that railway rates, upon the basis of early relationships, even of labor and materials costs during the recent past, were not excessive from 1920 to 1923. Yet if they had been excessive, the principal beneficiaries of this excess against which the farmers' spokesmen complain so bitterly, have been those workers who are seemingly so solicitous of the farmers' interests and who have so earnestly besought their support for a Farmer-Labor Party. Strange bedfellows, indeed!

There is much about the situation during 1921-1923 which recalls that of the early seventies. During those years, particularly before the panic of 1873, the farmer was suffering from post-war deflation, and stood ready to wreak vengeance upon any head which appeared. Then, as dur-

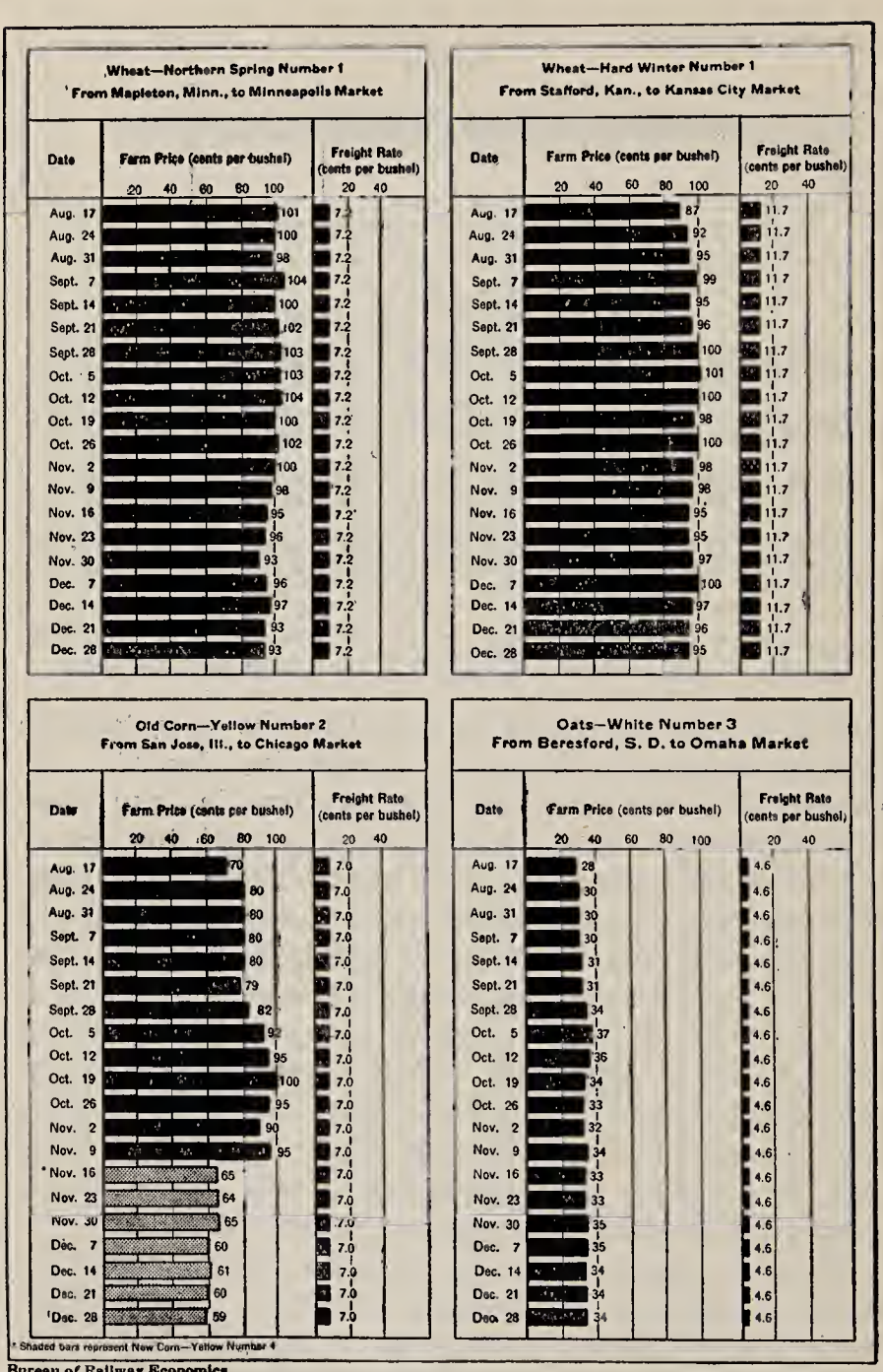
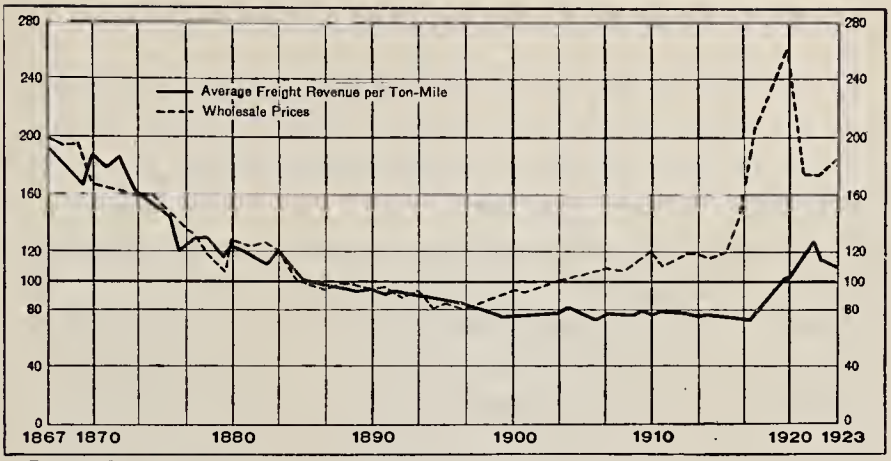

Wheat—Northern Spring Number 1
From Mapleton, Minn., to Minneapolis Market
Date
Farm Price (cents per bushel)
Freight Rate (cents per bushel)
Aug. 17 101 7.2
Aug. 24 100 7.2
Aug. 31 98 7.2
Sept. 7 104 7.2
Sept. 14 100 7.2
Sept. 21 102 7.2
Sept. 28 103 7.2
Oct. 5 103 7.2
Oct. 12 104 7.2
Oct. 19 100 7.2
Oct. 26 102 7.2
Nov. 2 100 7.2
Nov. 9 98 7.2
Nov. 16 95 7.2
Nov. 23 96 7.2
Nov. 30 93 7.2
Dec. 7 96 7.2
Dec. 14 97 7.2
Dec. 21 93 7.2
Dec. 28 93 7.2
Wheat—Hard Winter Number 1
From Stafford, Kan., to Kansas City Market
Aug. 17 87 11.7
Aug. 24 92 11.7
Aug. 31 95 11.7
Sept. 7 99 11.7
Sept. 14 95 11.7
Sept. 21 96 11.7
Sept. 28 100 11.7
Oct. 5 101 11.7
Oct. 12 100 11.7
Oct. 19 98 11.7
Oct. 26 100 11.7
Nov. 2 98 11.7
Nov. 9 98 11.7
Nov. 16 95 11.7
Nov. 23 95 11.7
Nov. 30 97 11.7
Dec. 7 100 11.7
Dec. 14 97 11.7
Dec. 21 96 11.7
Dec. 28 95 11.7
Old Corn—Yellow Number 2
From San Jose, Ill., to Chicago Market
Aug. 17 70 7.0
Aug. 24 80 7.0
Aug. 31 80 7.0
Sept. 7 80 7.0
Sept. 14 80 7.0
Sept. 21 79 7.0
Sept. 28 82 7.0
Oct. 5 92 7.0
Oct. 12 95 7.0
Oct. 19 100 7.0
Oct. 26 95 7.0
Nov. 2 90 7.0
Nov. 9 95 7.0
Nov. 16 65 7.0
Nov. 23 64 7.0
Nov. 30 65 7.0
Dec. 7 60 7.0
Dec. 14 61 7.0
Dec. 21 60 7.0
Dec. 28 59 7.0
Oats—White Number 3
From Beresford, S. D. to Omaha Market
Aug. 17 28 4.6
Aug. 24 30 4.6
Aug. 31 30 4.6
Sept. 7 30 4.6
Sept. 14 31 4.6
Sept. 21 31 4.6
Sept. 28 34 4.6
Oct. 5 37 4.6
Oct. 12 36 4.6
Oct. 19 34 4.6
Oct. 26 33 4.6
Nov. 2 32 4.6
Nov. 9 34 4.6
Nov. 16 33 4.6
Nov. 23 33 4.6
Nov. 30 35 4.6
Dec. 7 35 4.6
Dec. 14 34 4.6
Dec. 21 34 4.6
Dec. 28 34 4.6
* Shaded bars represent New Corn—Yellow Number 4
Bureau of Railway Economics

Figure 43: Variations in farm prices for wheat, corn, and oats, contrasted with stationary freight rates.



Research Council, National Transportation Institute

Figure 44: The course of average wholesale prices and of average freight revenues per ton-mile, 1867-1923

ing this more recent period, the railways were called upon to bear the brunt of his ill will. Now, too, just as then, there are those who eagerly await any opportunity to profit politically by "striking a responsive chord." The railway issue, for various reasons, had always served excellently to rouse the agricultural population. So, with loud voice and expressions of deep sympathy, the public has once again been led into the economic wilderness by its self-appointed saviors. But from that wilderness escape will not come through reiterating like a chant, "to hell with the railroads," any more than delivery came to the railways during an earlier period through the adoption of a policy typified by the statement "the public be damned." Escape will come through the education of the public upon railway matters, rather than through the misrepresentation and excoriation of one of the most efficient railway organizations in the world today.[1] In the railway industry there are flaws and evils, yet the professional antagonist of this enterprise should remember that "even the devil deserves his due."

[1] In a statement before the Interstate Commerce Commission, February 3, 1922, Hon. Herbert Hoover said that comparisons of fundamental criteria of American and foreign railways "will demonstrate that our railways are of better efficiency than others and are growing still better."

THE PROBLEM OF JURISDICTION

In contrast to this group of criticisms which lack sound basis are others which have resulted from a careful, though perhaps, in part, mistaken consideration of the Transportation Act. Perhaps the most widely voiced of these criticisms is rested upon the contention that the new legislation transfers undue powers to the federal Commission. By the proponents of state regulation it is urged, upon both constitutional and administrative grounds, that this centralization is undue and disadvantageous to the public. Yet even a casual consideration of the question indicates that a great part of the power now exercised by the Interstate Commerce Commission was transferred to that body by the Supreme Court in the Shreveport and following decisions: the Transportation Act did little more than put certain judicial decisions into statutory form. And the explanation of those decisions appears to the impartial student to lie in the unwise exercise of state authority over intrastate business; in fact, the very bitterness of the protests against the extension of federal authority from numerous old offenders against a sound public policy seems to be conclusive evidence of the need of continuing the broad federal powers now recognized. However, it is clear that certain problems can be better handled by local authority and it does seem unwise to centralize power in Washington unduly. The broad powers once exercised by the states cannot be wholly restored, both because of the dominant position of interstate traffic and the abuse of powers by certain of the state Commissions; nevertheless, it is desirable in public interest that state regulation be continued. Perhaps the solution is to be found in that cooperation which the federal Commission is seeking to encourage. By permitting local bodies to conduct certain hearings for the Interstate Commerce Commission and by securing the benefit of the local point of view and a knowledge of local problems through joint sittings, much can be done to secure the advantages of diverse control, yet avoid

its evils. None the less, it will be increasingly essential as time passes that final authority lie with the Interstate Commerce Commission.

THE SETTLEMENT OF LABOR DISPUTES

Numerous objections have also been lodged against the labor provisions of the Act of 1920. By some it has been urged that compulsory arbitration should govern labor relationships in a field in which continuous operation is so vital to public well-being. This group holds that the right of the public to service is superior to any right which labor or the carrier might seek to assert, particularly so when an impartial public tribunal has been erected to secure to both parties a reasonable measure of justice. To this general principle the writer has always subscribed and from the present provisions of the Transportation Act he expected little, yet the operation of those provisions has been such as to occasion him pleasant disappointment and that pleasure has been shared by many others. In fact, it now appears that a plan such as is now operative, approximating compulsory investigation and relying wholly upon public opinion for enforcement, represents the soundest present method of handling the railway labor problem.

But the labor provisions have been attacked upon other grounds. Complaint is rightly made that the Adjustment Boards authorized by the Act have not been organized; in consequence, the Labor Board has been burdened needlessly with a great volume of minor difficulties. For this failure to organize Adjustment Boards, railway labor seems primarily responsible: certainly there is nothing in the labor situation to justify the standardization of wages and working conditions for the entire United States, which would be almost certain to result from the establishment of the Adjustment Boards of national scope which were demanded by labor. Yet the railways, in insisting upon system boards, have likewise been at fault. In the interests of worker, carrier, and

public, Congress should make the organization of Adjustment Boards mandatory and prescribe the basis upon which they should be constituted.

Another criticism of the labor provisions of the Transportation Act is directed against the composition of the Labor Board itself. The representatives of railway labor upon the Board have thus far shown an extremely partisan attitude; they have given no evidence of that impartiality for which their position makes demand. Neither have the representatives of the carriers given proof of ability to judge wholly upon the merits of the case. Both groups have too largely the point of view of the attorney rather than of the judge. Therefore, instead of a Board composed of equal numbers of representatives of the three groups it might be well to increase the number of public representatives at the expense of the labor and employer groups or even, perhaps, to lodge sole voting power in the public membership, giving to the two interested parties a voice in the councils of the Board, without vote.

The most recent suggestion concerning the composition of the body empowered to handle railway labor disputes has been presented to Congress in a bill [1] which calls for the complete elimination of the present method of handling railway labor disputes. Under this plan four Boards of Adjustment would be organized, each representing a particular group of railway workers and each composed of an equal number of men appointed by the President from a list of nominees submitted by the "nationally organized crafts" and the railways. If the *status quo* is to be modified by an Adjustment Board decision, it will have to be the result of agreement. Though this plan worked satisfactorily during the period of federal operation, conditions then were anything but normal. Furthermore, the present Act has succeeded sufficiently well to merit further consideration. Then, too, this new plan, with Boards organized upon a bi-partisan basis, excludes wholly all unorganized workers in the railway field and

[1] Howell-Barkley Bill.

workers who are members of other than the "nationally organized crafts," or "standard" unions. But more important, it excludes the public, whose interest is paramount to that of either the railway or the worker. It will be difficult to convince a thinking people that it should be thus barred from the council-table when matters so vital to its well-being are under consideration. Though the bill also provides for a Board of Mediation and Conciliation and machinery for voluntary arbitration, these features contain no promise to the public of a reasonable wage level or continuous service: they represent an attempt to resurrect a scheme of handling railway labor disputes which labor itself "scrapped" when the Adamson Act was forced through Congress in 1916.

CONSOLIDATION YET AN UNSOLVED PROBLEM

Yet another criticism of the Act touches the matter of consolidation. Though this idea enjoyed almost universal public support when incorporated into the law, comment upon the subject has become somewhat more critical, indeed, one might almost say fault-finding, since that time. This critical point of view has been fostered largely by railways which prefer conditions as they are or fear a disadvantageous consolidation, and by local commercial interests which fear some loss in consequence of the unification of railway properties: both of these groups are selfish and have little regard for maximum public welfare. However, the advantages which the plan offers, both in increased efficiency and in the solution of the "strong and weak" line problem, make it reasonably certain that consolidation will not be dropped. Rather, means will be sought to enforce the unification of properties along lines of public interest. One interesting method of compulsion is suggested in the Cummins bill now pending, which would give seven years for voluntary consolidation, after which the Commission must exert pressure through the readjustment of joint rates in be-

half of consolidation. The sincere and intelligent cooperation of railway management in this matter will yield better results to the carriers and more immediate benefits to the public than attempts at evasion and "readjustments."

EVALUATION OF THE TRANSPORTATION ACT

All facts considered, the Transportation Act of 1920 represents a long forward step in the direction of constructive regulation: to this statement it appears that all careful and impartial students of the railway problem subscribe. Minor weaknesses it has, but at least it marks a departure from the restrictive and punitive policies which have so generally characterized state regulation and past federal control. The result of a careful study of railway matters, it promises both to protect present public interest and to assure that public of adequate transportation service in the future. In their application of the Act, both the Interstate Commerce Commission and the courts have pursued a constructive policy; in every case the provisions of the law have been applied in a reasonable and statesmanlike manner and in its interpretation the courts have shown an understanding of the fundamentals of the railway problem and a breadth of vision which may well give the public a high degree of assurance. The response of the carriers to this legislation has also been gratifying. Though not wholly to their liking, their readiness to accept the bitter with the sweet was clearly shown by the unwillingness of the great portion of the mileage of the country to join in an action seeking to overthrow the Recapture clause. Such cooperation and such broad-visioned interpretation and application cannot fail to yield satisfactory results in time.

True, there has been and remains sharp opposition to the Act among certain groups and in certain sections of the country. In part this opposition rests upon an ignorance of facts: the inexcusable misrepresentations of the law by men who have "political axes to grind" have served im-

portantly in leading the opinion of many astray. In part it rests upon the condemnation of those who object to the transfer of broad powers to the Federal Government; here the advocate of states' rights and the state Commission, stripped of certain powers which it has been wont to exercise, have joined. To these criticisms has been added the protest of the advocates of public ownership, a group which has been increased during recent years by the addition of organized labor to its ranks. Particularly insistent upon such a change in fundamental policy have been the railway labor organizations with their championship of the Plumb Plan, but this advocacy has recently been somewhat less ardent than immediately following federal control. Though, in reality, it is not so much the open advocate of government ownership that its opponents, the great mass of the American people, need fear: the greatest danger to the private ownership and operation of railways is from those who, professing openly no belief in another system, advocate unwise, unfair, and injudicious restrictions, which can only "hamstring" the present system and bring about its collapse. The wolf in sheep's clothing and he who is blindly "agin" the railroads are more likely to endanger the continuance of private ownership and operation, which is yet to be proved inferior to ownership and operation by the government, than the open opponents of our present system.

It cannot be said that the Transportation Act has succeeded in an unqualified way from the standpoint of the railways or the public, yet application during abnormal times and the brief period of operation certainly justify continued trial, in view of its partial success. Modifications are now desirable in minor matters; perhaps time will justify even major changes. But every modification and every fundamental change should be grounded upon a careful and intelligent judgment. Considered and deliberate action is the least which the public should demand of its legislative representatives in matters affecting this, an industry of vital importance.

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INDEX

INDEX

A

Abandonment, construction and 717-718, 821-822, 872
Ability as a principle of rate-making
  developmental principle 531-533
  keep-everybody-in-business 529-531
  value-of-the-commodity 533-535
  value-of-the-service 527-529
  what-the-traffic-will-bear 535-539
Accounting department, general statement 292
Accounting department
  car records 414-415
  expenditures division 411-412
  freight revenues division 412-413
  organization of 410-411
  passenger revenues division 413-414
Accounting, need of adequate 409-410
Accounting, railway
  demand for regulation 416
  diversity of systems 416-417
  groupings
    general balance sheet 421
    income 420
    investment 417-418
    operating expense 418-420
    operating revenue 418
    profit and loss 420-421
Accounting system, prescribed 417, 769-770
Accounting, ticket 358-359
Act to Regulate Commerce (1887)
  demand for regulation 733-736, 737-738
  early legislative attempts 736
  emasculation of the Act 741-754
  provisions of the Act 738-741
  results 754-755
Acworth, W. M. 535
Adamson Act 799-801
Additional cost of specific service 541, 542
Adhesion a basis of tractive power 72
Adjustment boards, bi-partisan 203, 208, 885-886
Administration, railway
  see organization
Advisory Boards, Regional 876
Advisory Commission 703-706
Agreements, rate 108, 448-449
Agriculture burdened 881
Aid, federal 124, 125
Aid, local 125
Air brakes 144
Alabama Midland case 751-752
American Railway Association 190, 191
American Railway Express Company
  administration 393-394
  organized 392
American railways, pioneer 67
American Steel Foundries v. *Tri-City Central Trades Council* 685
Analysis of railway traffic 461-463
Ann Arbor case 685
Anti-Trust Law, Sherman 671-672, 802
Arthur v. *Oakes* 683, 687
Artificial stimulation — a public policy 647, 651-652
Atchison, Topeka and Santa Fe 105, 129, 254
Atlanta, importance of 572
Atlantic ports, rivalry of 219
Automobile, competition of 371-372

B

Baggage allowance 359
"Balance of traffic," importance of 621-622
Baltimore-Atlanta rate, importance of 572-573
Baltimore and Ohio
  first common carrier by rail 69
  roadway construction 70
Barr v. *Essex Trades Council* 674
Basing-point system of rate-making
  justification urged 569-570
  nature 567-569
  reasons for development 566-567
Beale and Wyman 678
Bill of lading
  information contained 305
  live stock contract 309
  types 306-307
Bi-partisan labor boards 203, 208, 885-886
Black-list, the
  legal status 685
  use 682
"Blue-tag" mail 378
Bond interest 516-518
Bonds, increased use of 154
Bonds, railway
  ratio increasing 469-473
  types 478-479
Book value 470
Borrowed capital
  bonds 478-479
  short-term paper 477-478
Boston and Maine 247
Boycott, the
  legal status 685
  use 682
Bridges
  early 47
  toll 47
Brown case 742
Budd v. *New York* 656
"Burden of proof" 777-778
Business conditions (1920-1923) 835-844
Business problem of the railway
  under competition 464-465
  under monopoly 465

C

California, discovery of gold in 87
Canadian National railways 249
Canadian Pacific lines 249
Canals
  American projects 41-44
  costs of movement 52
  early use of 31
Capital expenditures, federal control 204-205
Capital, foreign 91, 126-127
Capital
  scarcity of 78, 120
  supply of 650-651
Capital value, railway
  compared with capitalization 480-481
  determination of 481-486
Capitalization, railway
  American and European compared 475-476
  capital value compared 480-481
  gross and net 469
  nature
    owned capital 476-477
    borrowed capital 477-479
  overlapping claims 479-480
  per mile of line 473-475
  regulation of—*see* Securities, regulation of
  total since 1890 470
Capitalization, various conceptions of 468-469
Car, early development 59
  improvements 211-212
Car interchange 321-322
Car records 414-415
Car Service Act, Esch 792
Car Service Commission 190
Car service, Commission's power over 832
Car-loadings, (1920-1923) 837-840, 853-855
Carmack Amendment 767
Carolina territory, rates into 575
Carriages, steam-driven 61
Central Freight Association Territory, rates in 560-562
Central Pacific, construction of 103-105
Charge, determination of freight 345
Charges, comparison of American and European 627-635
Charges, express 404
Charter, the railway
  basis of regulation 699-701
  contractual nature 273-275
  provisions 272-273, 275
  source 271-272
  uniformity of 275
Chattanooga case 753
Chicago, Burlington and Quincy v. *Cutts* 711, 712
Chicago, Milwaukee, and St. Paul Railway 255
Chicago–New York rate, importance of 555-556
Chicago, Rock Island and Pacific Railway 252, 255
Chicago–St. Louis adjustment 579-580
China, transportation costs in 29
Christ Church Hospital v. *Philadelphia County* 274
Cincinnati Freight Bureau case 745-748
Civil War and railway development 88
Claims, railway 312, 415
Clark and Marshall 263, 264, 266, 268
Clarke, J. M. 537, 538
Class I railways defined 279
Classification, express 397-401
Classification, freight
  committees 334-335
  consolidated 335-336
  designations used 340
  determinants of 336-339
  evolution 332-333
  items and ratings 340-341
  purpose 331
  regulation 781
  territories 333-334
  uniformity
    advantages and obstacles 345-346
    progress toward 346-347
Clayton Act 802-803
Cleveland and Powell 77, 271, 273
Closed-pouch service 377-378
Colorado Common Points 586-587
Combination, movement toward
  gains 180
  its recession 238-239
  methods 159, 179, 237
Combination through large stockholders 250
Commerce Court
  provisions of the statute creating 779-780
  purpose 779
  results unsatisfactory 787-789
Commercial rivalry—a motive behind railway construction 84
Commission activity under Hepburn Act 767-769
Commission control, constitutional basis of 663-664
Commission, the state
  advisory 703-706
  early bodies 702
  mandatory
    early 709
    present
      scope of authority 716-718
      title, membership, etc. 714-716
Commodities clause
  early application 772-774
  nature and purpose 765-766
  present effectiveness 774-775
Common carrier, characteristics of 642
Common law, judicial action under the
  discrimination 677-678
  gains 679-680
  rates, reasonable 675-677
  service 678-679
Common Point territory, Texas
  cause for its appearance 592
  modifications 596-597
  traffic adjustments—north and east 592-593
Common Points
  Colorado 586-587
  Montana 588-589
  Utah 588
Common stock 476
Compass 29

Compensation during federal control 198-199
Compensation for use of cars
privately owned 323
railway owned 322-323
Competition, activity of
second period 106-107
third period 134-144
Competition and rates
general level of charges 135
particular territories
Southern 565-566
Southwestern 591-593
Transcontinental 599-600, 602-607
Trans-Missouri 585
Trunk Line 549-553, 558-559
Western Trunk Line 579, 580, 581, 582, 583
Competition, control of
consolidation 452-454
cooperation 448-452
existing
Granger territory 221
New England territory 215
Southern territory 219
Southwestern territory 223
Transcontinental 225
Trunk Line territory 217
passenger
automobile 371-372
electric railway 371
railway
early acceptance 431-432, 645-646
far-reaching 432-433
forms assumed 439-440
intensity 440-445
results 445-447, 646-647
types
industrial 438-439
market 436-438
traffic 433-436
Comptroller 292
Compulsory arbitration 813
Conference bill 814-815
Congestion, traffic 189
Consolidation, railway
early 98-100
effect on capitalization 494
methods employed 452-454
proposal to compel 812-813, 885
Transportation Act
final plans considered 859-860
problems arising 860
provisions of law 819-821
tentative plan 857-859
unsolved problem 887
Constitutional guarantees 662
Constitutionality of regulatory acts 710-712
Construction and abandonment 717-718, 821-822, 872
"Construction" companies 120, 492-493
Construction costs 619
Construction, railway
see Mileage construction
Contingent fund, general 827
Continuous operation 440-441
Contract, express
old basis 394-395
new agreement 395-397
Conversion of current liabilities 493-494
Cooke, Jay, and Company 111
Cooperation, railway
division of territory 451-452
early efforts 144-147
pool 449-450
rate agreement 448-449
Cooperative freight lines 322
Corporation
advantages of 264-265
definition and nature 263-264
types
public and private 266-267
quasi-public 268-269
Corporation, railway
concentration of control 279-280
magnitude of 275
ownership of 276-277
tendency toward larger 277-278
Cost accounting, need of 425
Cost comparisons modified 623-626
validity of 627
Cost of reproduction
advantages 485
objections 485-486
types 484
Cost of service
advantages 543
definition 539
difficulties 541-543
evaluation 544
types 539-541
versus "what-the-traffic-will-bear" 851-852
Costs and charges, relation of 618-619
Costs, economic burden of early transportation 52
Costs of federal operation 209
Costs, railway
deductions 508-510
operating expenses 506-508
Costs, transportation, in America prior to the railway 49
Cotting case 655, 789
Counselman case 742
Crédit Mobilier 151
Credit, railway
cause for decline 171-178
evidence of decline 165-171
rehabilitation 521-523
Criticisms of the Transportation Act
considered 883-888
uninformed 878-883
Cross-hauling, reduction of 201
Crossings, Mississippi River 581-582
Crossings, Missouri River 581
Crossings, Ohio River 572-574
Cugnot, Nicolas 61
Cullom Report 737-738
Cumberland Road 49
Cummins Amendment 310
Cummins bill 810
Curves, difficulties resulting from sharp 71

D

Daniels, W. M. 784
Dartmouth College case 263, 274
Daugherty injunction, the 867-869
Debenture bond 479
Decreased rates 849-852

Deductions from gross income 508-510
Defense, national, and transportation 12
Deflation, railway share of 880-881
Delaware and Hudson case 773
Delays in enforcement of Commission orders 742-743
Delivery receipt 316
Demurrage 320
reciprocal 320-321
De novo, cases tried 743-744
Density of traffic, importance of 622
Denver and Rio Grande 131, 248
Denver and Rio Grande Western 248
Departmental organization 300
Depression of 1920-1922 837-838
Determinants of governmental policy
conclusion 653
governmental efficiency 652-653
need of artificial stimulation 651-652
supply of capital 650-651
Development
factors influencing 87, 120, 158
industrial 121
Developmental rate 531-533
Differentials, port 558-560
Directors, board of 284-285
Discrimination
a major problem 137
common law status 677-678
personal 138, 758-760
place 112, 138
public condemnation of 138, 139
see also Long-and-Short-Haul clause and Regulation
Disque scale 561, 562
Distance rates in Trunk Line territory
initial plan 555-558
revised scheme 555-556
zoning modification 556-558
Districts
major 214-215, 216
minor
in common usage 215-227
official 223
Diverse routes, competition of 434
Dividends 518-519, 520
Divisional organization 298
Division of joint rates
see Joint rates
Division of labor 7
Division of territory 451-452
Dixon, F. H. 705, 706, 708, 773
Dunn, S. O. 723, 726

E

Earning capacity 481-482
Eastern Trunk Line territory 563-564
Economic conditions and rate theories 852-853
Efficiency and costs 620-621
Efficiency in passenger service 367-368
Efficiency, increase in 141-144
Efficiency, increased railway
locomotives improved 115
steel rails 115
train movement 115
Efficiency, organization 302
Efficiency—under federal control 200
Electric railway competition 371
Elkins Act
importance of rebating 760-761
operation 762
problem of personal discrimination 758-760
provisions 761-762
Ely, R. T. 458
Eminent domain 644
Employees, railway 232
Employers' Liability Act, federal 801
End-to-end routes, competition of 435-436
Engineering problems, early
gage 74
power 71-74
roadway 70-71
train operation 75-76
England, early regulation in 639-641
Equalizing beam 73
Equity powers in labor disputes 681-682
Erdman Act 798
Erie Canal 43, 140
Esch and Cummins bills compared 811-814
Esch bill 811
Esch Car Service Act 792
European and American railways compared
capitalization 475-476
rates and service 627-635
European War, influence of 159
Evans, Oliver 61, 63-64, 67
"Eveners" 449-450
Excessive rates, alleged 880-882
Executive committee 285
Expansion, railway
actual—measured by
capitalization 169-171
plant 168-169
need 166
rate 167
Expenditures accounting
divisional vs. centralized 416
general organization 410-411
Expenses, operating
movement since 1905 510-512
purposes of outlays 506-508
Express charges, comparison of 627-628
Express Company, American Railway
see American Railway Express
Express contract 394-397
Express rates
block system established 401
block tariff 399-400, 404
directory 398, 404
elements 401-402
rate scale 403, 404
Express service
development of 391-393
future 405-407
handling of shipments 393-394
motor truck competition 405-406
nature of goods handled 390-391
organization 393
papers issued 393-394
regulation 397-404
versus parcel post 405

F

Facilities, joint use of
need 456
public regulation 833
Fair value 470, 487-488
Fares, passenger
see Passenger rates
Fast freight lines 321-322
Federal control
capital expenditures 204-205
causes 192-194
compensation 198-199
conclusions regarding 210
labor 203-204
operations 199-202
organization for operation 194-197
rates 202
results
classification and rates 206-207
labor 207-208
operations 205-206
standard contract 197-198
Federal powers, extension of, by
judicial decisions 665-667
statute 667-668
Federal Railroad Administration
see Federal control
Federal regulation to 1920
development 733-804
gains 804-805
weaknesses 805-806
Ferry charges 50
Fifteen Per Cent Rate case 784
Finance, railway
second period (1850-1873)
expansion, undue 110-111
investment 109-110
relation to Granger legislation 113
relation to panic of 1873 111
third period (1873-1893)
increase in investment 150-151
overcapitalization
causes 151-152
changes in financial policy 153-154
indications 150
morality 152-153
Financial results of the Transportation Act 853-858
"Findings of fact," judicial examination of 743-744, 766-767, 770-772
Five Per Cent Rate case 784
Fixed charges 439, 440, 506-507
Fixity of railway capital 441-442
Flexible beam truck 73-74
Foreign capital, investment of 91, 126-127
"Foreign" cars, payment for use of 322-323
Fraud—
capitalization factor 152
cause of regulation 706-707
influence on credit 172
Freight bill 315
Freight claims 312, 415
Freight classification
see Classification, freight
Freight handling
line 318-320
terminal 316-318
Freight rates
American charges 628-630
compared with European charges 630-631
Freight revenue accounting 412-413
Freight service
importance of 304, 328-329
increased, demand for 166-167
statistics 233-234
Freight shipping papers 304-309, 314-316
Freight terminals 316-318
Freight traffic
development of 350-351
increase in 166-167
pooling of 449-451
volume of 233-234, 330-332
"Friendly" receivership 688-689
Full crew laws 723
Funding of carrier obligations 816

G

Gage, problem of 74
General balance sheet 421
General Counsel, functions and staff 291
General Order, No. 27 203
Germany, railway construction in 652
Gettle, L. E. 715
Goldstein, J. M. 235
Gould system 251
Government aid to railway construction
conditions necessitating 650-652
in the United States—*see* Public aid
Government operation versus private 648-650
Government ownership 177
Government regulation
see Regulation
Governmental efficiency and railway policy 652-653
Governmental functions, division of 669-670
"Graded and maximum" rates 594-595
Granger legislation
causes of dissatisfaction 112-113
extent of action 113-114
general statement 706-709
provisions of laws 114
repeal 114
Granger territory 221-223
Great Northern 130, 243-245
Gross capitalization 469
Groupings, ownership
appearance 178
capitalization and revenues 276
separate groupings 237-254
Groupings, territorial
major 214-215
minor 215-227
permanence 227-228
Groupings on westbound class rates 607-608
Growth, periods of railway 56
Guarantee, six months' 816-817
Guaranteed return, alleged 879
Guarantees, constitutional 662

H

Hackworth, Timothy 65, 67
Hadley, A. T. 789

Handicaps of the railways in 1920
inadequate rates and wages 844-846
unready for efficient service 841-843
Handling of freight
line 318-320
terminal 316-318
Harriman, Edward H. 246
Hawley system 254
Hay, Grain, and Stock Rate case 851
Hepburn Act
provisions of 764-767
renewed demand for railway legislation 756-758, 763-764
results obtained 767-775
Hepburn Committee 148
Highway, railway as a public 76
Hill, James J. 130, 244
Hill system 243-245
Historical cost
advantages 483
nature 482-483
obstacles 483-484
Holding Company, Rock Island 253
Holmes, Fred 726
Howell-Barkley bill 886

I

Illinois Central Coal Car Distribution case 185, 766-767
Illinois Central land grant 95
Illinois, early regulation in 708-709
Illinois Fare case 666, 727
Import and export rates 744-745
"Inbound" freight house 317-318
Income account, 1922, Class I railways 522
Income accounts 420
Income bonds 479
Income, non-operating
importance 505-506
sources 503-505
Income, railway net 510
Increased rates in 1920 846-847
Increased wages
in 1918 203-204
in 1920 861-863
Increasing returns 442-445
Industrial competition 438-439
"Industrials," rise of 174
Industry, expansion of 121
Injunction, the
advantages 674
conditions of issuance 674
legal status 686-687
types 673-674
use 682-683
Insurance, railway 302
Interchange, car 321-322
Interest, bond 516, 518
Interest—influenced by transportation 15
Interlocking directorates
railway and supply companies 802-803
railways 821
Intermediate territory, rate-making into
discrimination against 601-602
present situation of 606-607
zoning order—(1911) 603-604
zoning order modified 604-605
Inter-river rate 581-582
Interstate Commerce Act (1887) 149, 738-755
Interstate Commerce Commission, organization of 739, 767, 833-834
Interstate commerce, regulation of *see* Regulation
Intraterritorial rates, Southern 576-577
Investment accounts 417-418
Investment, foreign 91, 126-127
Investment, increase in railway 150
Investments, competitive 174
Iowa commissions 705
Isolation—effects of 11

J

Joint rates, Commission's power over—under Act of 1910 781
Joint rates, division of
New England case 874-875
Orient case 875-876
provision of Act 829
Judicial action, bases of 762-763
Judicial control, phases of
labor 680-687
rates and service 675-680
receiverships 688-693, 694-696
Judicial powers under positive regulation
gains 680
scope 679
Judicial supremacy, development of 671-672
Judiciary, constitutional powers of the 670
Jurisdiction, federal versus state
definition of interstate commerce 271, 665
future of state regulation 729-731
important judicial decisions 665-667
increased rates (1920) 847-848
provisions—Transportation Act 829
recent extensions of federal authority 727-729, 876
weaknesses of state regulation 724-726

K

Kansas City Star 723
"Keep-everybody-in-business" 529-531
Kentucky and Indiana Bridge case 743
Kirkman, M. M. 287

L

Labor Adjustment, Railroad Boards of 823-825
Labor disputes
and the courts 681-682
settlement of 203, 208, 798-801, 823-825, 885-886
Labor legislation, railway
Adamson Act 799-801
Erdman Act 798
miscellaneous laws 801-802
Newlands Act 798-799
Labor morale in 1920 843
Lackawanna case 774
LaFollette, Senator R. M. 790
Land grants
amount of 97
cessation of 98

development of governmental policy 97
extent of 133
forfeiture of 133
influence on mileage 124
prices obtained 124
terms of grants 96
Land routes
early colonial 39
courses followed 41
particular routes 40
Land transportation
condition of early roads and bridges 45
evolution of 26
Legal department 291
Lehigh Valley case 773, 774
Length of haul, a modifying factor 624
Liability, carrier
beginning and termination 311-312
limitation of 310
nature of 310-311
Liability for unpaid charges 313
Limitation of rate of return 825-826
Live stock contract 309
Live stock, rates on 850-851
Liverpool and Manchester Railroad 65
Locomotive, the
development 61-67
early American built 72
early American improvements 73
importance 59
improvement 210-211
speed 143
Long-and-Short-Haul clause
Act of 1887
as stated 739-740
early controversies 748-751
emasculation 751-753
amended in 1910
changes made 778-779
results 785-787
amended in 1920 830

M

McAdoo, William G., Director-General 195
McGraham scale 555
Mail pay, railway
compensation
before 1916 387-388
present 388-389
services rendered 386-387
Mail service
importance 373-374
power of government 386-387
problems arising 386-388
railway as a factor 374-378
volume 378-379
Man, slow development of 25
Management, railway
see Organization
Mandatory Commission 708-709, 714-718
Mann-Elkins Act
demand for further legislation 775-776
operation of the law 783-790
provisions included 776-782
Market competition 436-438, 558-559
Market manipulation 492
Massachusetts Commission 703-705
Maximum Rate case 662, 745-748
Maximum rates, power to fix
federal
conferred 764
withheld 745-748
state 708, 710-711, 717
Mechanical advancement 210
Messenger v. *Pennsylvania Railroad Company* 678
Meyer, B. H.
46, 47, 51, 53, 54, 272, 730-731
Mileage construction
first period (1830-50)
extent of net 80-83
impelling forces 83-84
second period (1850-1873)
causes of growth 91-93
distribution of mileage 88-90
total 90
third period (1873-1893)
causes of expansion 123-128
distribution of mileage 122-123
total 122
fourth period (1893-1920)
as a whole 160-161
extensive growth 161-163
stagnation 163-165
Mileage, railway
Europe 230
relation to area and population 229-231
states, individual 229
total 228
United States 230
Mileage rates in Central Freight Association territory 560, 561
Mileage, receivership 694
Minimum rates, power to prescribe 829
Minnesota Rate cases 666
Mississippi River Crossings 581-582
Missouri Pacific–Texas and Pacific lines 247
Missouri River Crossings 581
Money pool 450
Monopoly—a cause of regulation 147
Monopoly, railway as a
entire net 459
modifications of nature 464
single carrier 459-461
traffic analysis 461-464
Montana Common Points 588-589
Morality of stock-watering 494-496
Morgan system 242-243
Mortgage bonds 477-478
Munn v. *Illinois*
17, 114, 269, 271, 656, 660, 703, 711
Murdoch, William 61

N

National agreements
abrogated 863
signed 208
Net capitalization 469
Net income, disposition of 510
"Net income for division" 396-397
New England, rates in 562-563
New England territory 215-217
New Haven lines 247, 253
Newlands Act 798-799
New York Central system 240
New York–Chicago rate, importance of 555-556

Nominal versus real costs 623-624
Northern Pacific 105, 111, 130, 243-245
Northern Securities case 185
Novelty, Ericson's 65, 66

O

Obstacles to transportation and trade
see Transportation and trade
Official Classification territory 334
Ohio River Crossings adjustment 572-574
Operating cost, average 541, 542
Operating department
divisional versus departmental organization 298-300
importance 294-295
line officers 296-298
staff officers 295-296
Operating expense accounts 418-420
Operating income, decline of
increasing costs 174-176
stationary rates 176-177
Operating ratio
evaluation 513-516
importance assigned 512-513
movement 511, 516
nature 512
Operating revenue accounts 418
Order bill of lading 306-307
Organization, railway 266, 282-302
see index for particular departments
Original cost
see Historical cost
Osborne ease 749-750
"Outbound" freight house 317
Overcapitalization
a credit factor 172
causes 151
morality 152-153
see also Watered stock
Overconstruction, relation of, to credit 172
panic of '73 110
receiverships 693
Overland movements—
see Land transportation
Ownership, government 177
Ownership groupings
appearance of 178, 237-238
broken 251-254
major systems 240-246
minor systems 246-249
recession of movement 238-240

P

Pacific railways
see individual roads
Panama Canal Act
provisions 790-791
results 791
Pangborn, J. G. 70
Panic of 1873 119-120, 121, 135
Panic of 1893 120, 157, 178
Parallel building 128
Parallel routes, competition of 433
"Paramount issue," regulation a 763-764
Parcel post
establishment 380-382
financial results 386
privileges 384-385
rates 381, 382, 383-384
regulations 384
versus express 405
volume of 385-386
Pass, railway 369, 767
Passenger-mile as passenger traffic unit 617
Passenger-mile costs
American figures (1889-1922) 632
comparisons modified 626-627
elements determining 619-623
Passenger rates
American charges 631-632
determination 612-613
comparison with European charges 633-634
Passenger revenue accounting 413-414
Passenger service
abuses 369-370
and efficiency 367-368
classification in 360-362, 369
comparative statistics 366
competition as a factor in 370-372
contrasted with freight 353-355
importance of 352-353
statistics 234
types of
local 355-356
through 356-357
Passenger traffic, development of 368-369
Peik v. *Chicago and North Western Railway* 665, 711
Pennsylvania system 240-242
Percentage rate territory 555-559
Per diem payment 322
Per mile of line, capitalization
American railways 473-475
causes of differences in 475-476
European railways 475
Picketing
legal status 684-685
use 682
Pioneer American railways 67
Police power, regulation under the 654
Policy, changes in financial 153-154
Pool, railway
federal regulation 740, 819
success 145, 450-451
types 145, 449-450
Population—influence of transportation facilities upon 10
Population, westward movement of 120-121, 127-128
Port differentials 558-560
Positive regulation, scope of judicial action under 679
Post-office
railway 375-376
terminal 279
Potter Law 708
Preferred stock
reasons for issuance 476-477
types 476
President, the railway
early importance 287
responsibilities 289-290
training 289

Price level, movement of, since 1920 836-842
Prices, rise of 159
Private car lines
advantages 324
future 326
objections 324-325
types 323-324
Private cars, number of 326
Private versus government operation 648-650
Profit and loss account (1922) 523
Profit and loss accounts prescribed 420-421
Profits—influenced by transportation 16
Progress, social, and transportation 10
Promoter, railway 84, 128
Propulsion of water craft 28
Prosecution of appeal cases 781-782
Public aid, extension of
causes 92-94, 643
kinds and amount 94-98, 123-126, 644-645
policy abandoned 98, 131
results 131
Public policy
and rate theories 545-546
determination 466
problem 18
Public regulation, influence of, on
Southern rates 577-578
Southwestern rates 596-599
Transcontinental rates 602-607
Pullman service
advantages to the railways 363
contract governing 363-364
determination of the charge 364-365
growth of 362-363
Purchasing power of money 626
Purchasing, railway 300-301

Q

Quantity of shipment
a classification factor 338
a cost factor 623

R

Rail, early development of 57
Rail-and-water movements, regulation of 791-792
Railroad Commission of California v. *Southern Pacific et al* 729
Railroad Labor Board
creation in 1920 823-824
evaluation of its work 871-872
its work 861-866
problems faced 869-871
Railroad Securities Commission
see Securities Commission
Railroads' War Board 190
Railway
"burdened with public interest" 16, 269
business, magnitude of 231-235
capital, inadequate supply of 78, 165-177
construction—*see* Mileage construction
early American interest in 67
early conception of nature of 76
growth, periods of 56
importance of the 235-236
investment in (1893) 150
mail pay—*see* Mail pay
opposed by rival interests 77
rate theories 525-546
stock, ownership of—*see* Stock
Railways—classified as to amount of total operating revenues 279
Railways, condition of—in 1920 841-846
Rain Hill, locomotive trial at 64
Rate agreements 448-449
Rate level, reduction of 137
Rate-making
complexities of 343-344
fundamental considerations in 341-343
reasonable theory of 546
see also Rates; Structures; Theories
Rate of return (1920-1923) 853-857
Rate of return, limited 826
Rate relationships, uniformity of 348-349
Rate structures, conclusions regarding 611-612
Rate structures, individual
see Structures
Rate theories
see Theories; Rates
Rate theories and economic conditions 852-853
Rates
alleged excessive 880-883
commodity 339
competitive 136
during federal control 202, 206
express—*see* Express
inadequate—in 1920 835-836
parcel post 381, 382, 383-384
passenger 613-614
railway, decline of (1860-1873)
effect upon water traffic 116
extent of decline 116
increased use of railways 117
Ratio, bond 469-473
Reading case 774-775
Reagan v. *Farmers Loan & Trust Co.* 661
Real Estate Agent 301-302
Reasonable rate, theoretical basis of a 546
Reasonable rates under common law 675
Reasonable wage, a 865-866
Rebating, magnitude of 760-761
Rebating under the Hepburn Act 767
Recapture clause
constitutionality 873
nature 827-828
operation 873
Receipt for freight 305
Receivership, the railway
causes 693-694
extent of mileage 694
improved control 696
judicial function pending settlement 692-693
peculiar nature 689-690
termination 690-692

types 688-689
weakness of judicial control 694-696
Reciprocal demurrage 320-321
Reconsignment under straight bill 311
Regional Advisory Boards 876
Regulation after 1873 120
Regulation
basis of
constitutional provisions 657-658
general bases 654-657
historical 639-645
police power 648, 654
extension of
federal 181-186
state 186-187
results 187-188
failure of 177
federal 181-186, 733-889
see also Interstate Commerce Act; Elkins Act, etc.
functions in
judiciary 659-662
legislature
commission 663-664
specific act 662-663
in 1917, character 803-804
major purposes of 647-648
need of 646-647
renewed demand for 147
security—*see* Securities
state
advisory commission 703-706
early action 149, 699-702
future 729-731
gains 720-721
positive regulation
initial period 706-712
renewed action 713-720
versus federal 727-729
weaknesses 721-726
Relative prices 840, 880
Rent—influenced by transportation 14
Reorganization, effect of—on capitalization 494
Reorganization, railway 691, 692
Reproduction, cost of
see Cost of reproduction
Reserve fund, individual 827-828
Resources, natural—utilization of 8
Results of competition
public 445-446
railways 446-447
Returns since 1920, financial 853-857
Revenues, railway
operating
distribution of 512, 514
movement since 1905 510-512
sources 501-503
variations among roads 503, 504
non-operating 503-506
Review, judicial 743-744, 766, 770-772
Revolving fund 818-819
Right-angled routes, competition of 434-435
"Rights" 493
Ringwalt, J. L. 80, 114, 704, 707
Ripley, W. Z. 564, 761, 764
River traffic, decline of—in South 574
Road-bed, construction of early 70
Roads
colonial 45
government aid to 48
toll 47
Rock Island system 252
Rocket, Stephenson's 66
Roosevelt, Theodore 763
Routing, Commission control over 831-832
Rudder 29
"Rule of rate-making" 826

S

St. Louis–San Francisco Railway 252
St. Louis–San Francisco Railway v. *Mo. Public Service Commission* 729
Sans Pareil, Hackworth's 66
Santa Fe
see Atchison, Topeka and Santa Fe
Saratoga Conference 108
Scalping, ticket 369
Scofield v. *Michigan Southern Railway* 678
Scope of regulation
Act to Regulate Commerce (1887) 739
Hepburn Act 764
Mann-Elkins Act 781
Secretary, functions of 290
Section Four
see Long-and-Short-Haul clause
Securities Commission, Railroad
findings 498, 789
recommendations analyzed 498, 789-790
statutory provision 782
Securities, market weakness of 172, 519-521
Securities, regulation of
administration of law 872
federal action 497-499, 822
gains 499
justification 496-497
recommended 736, 738
state action 497
success attained 872
Service, character of 625-626
Service, regulation of 876
Shares, ownership of railway
see Stock
Sherman Anti-Trust Act 671-672, 802
Shopmen's strike 866-869
Shreveport case 185, 666, 725, 727, 828
Signaling, primitive 75
Sites, scarcity of suitable 459-460
Six months' guarantee 816-817
Sixteen Hour Law 801
Social Circle case 744, 746, 750, 771
Social need—a basis of rate-making 544-545
Southeastern Express Company 393
Southeastern Mississippi Valley—rates into 576-577
Southern Classification territory 334
Southern Pacific 105, 129, 275, 600
Southern Railway and Steamship Association 146-147
Southern rate structure
basing-point system 566-570
decline in river traffic 574
"in" rates from the North 570-574
intraterritorial rates 576-577

peculiar conditions existing 564-566
recent changes 574-576
regulation helpful 577-578
Southern territory 219-221
Southwestern rate structure
area defined 590
conclusion 598
competitive situation 590-591
Interstate Commerce Commission on 598
modification of Texas rates 595-597
readjustment of other rates 598-599
Texas interstate rates 591-593
Texas intrastate rates 593-594
Southwestern territory 223-225
Specific service, Additional cost of 541, 542
Speculation—a credit factor 172
Spring Valley Water Works v. *Schottler* 657
Standard Oil decision 672
Stanislaus case 274
State v. *Great Northern Railroad* 664
Statistics, railway
compilation 423
further development 425-426
scope 424
sources 426
uses 422-423
Statutory regulation by the states 718-720
Steam engine, early development of 60-61
Stephenson, George 64
Stock dividend 493, 520
Stock, dividends on 518-519, 520
Stock, railway, ownership of
apparent concentration 255-257
broad 257-258, 277
distribution 257
individual roads 255-257
Stock, types of railway 476
Stockholder, powers of the 283
Stockholders, large 250
Stone v. *Farmers Loan and Trust Co.* 660
Storage, track 321
Stourbridge Lion 68
Straight bill of lading 305-306
Strike
legal status 683-684
use 682
Structures, rate
general conclusions 611-612
Southern 564-578
Southwestern 590-599
Transcontinental 599-611
Trans-Missouri 585-590
Trunk Line 549-564
Western Trunk Line 579-585
Surcharge, Pullman 365
Suspension of rates
justification 776-777
operation 783-785
original provision 777
statute modified 828-830
Switching 320
Swivel truck 73

T

"Tacking" 29
Tariffs, freight
scope 344-345
types 344
Taxes, railway 175
Technical progress 210
Ten per cent decrease in rates 851
Ten Per Cent Rate case 783
Territory, division of 451-452
Testimony, compelling 741-742
Texas rates
interstate
old basis 591-593
revision 596-597
intrastate
"graded and maximum" 593-594
present basis 595-596
Texas and Pacific 95, 105
Texas and Pacific Railway Company v. *Interstate Commerce Commission* 745
Theories, rate
need of theoretical basis 525-526
public policy 545-546
sound basis 546
types
ability 526-539
cost 539-544
social need 544-545
Thomson, J. E., on rate agreements 108
Tickets, passenger
accounting 358-359
classification 357-358
privileges accorded 359
Title to shipment 311
Toll roads and bridges
construction 47
inadequacy 48
Tolls, turnpike 51
"Tom Thumb" 69
Ton-mile as freight traffic unit 616-617
Ton-mile costs
American figures (1870-1893) 629
comparisons modified 623-626
elements determining 619-623
Tonnage, nature of 330
Tonnage, present railway
Granger territory 221
New England territory 215
Southern territory 219
Southwestern territory 223
Transcontinental territory 225
Trunk Line territory 217
Total cost, average 541, 542
Track, construction of early 57
Track storage 321
Trade and transportation
see Transportation and trade
Trade routes, early
America 32
Eurasia 31
Traffic
competition
diverse routes 434
end-to-end routes 436
parallel routes 433
right-angled routes 434-435
competition in Trunk Line territory 551-552
conditions and cost 621-622
department, organization and work 293-294
development of freight 350-351

development of passenger units 368-369
Freight 616-617
Need 615-616
Passenger 617
Train movement, early difficulties of 75-76
Transcontinental railways
congressional rivalry 102
early proposals 101
later projects 105, 128-131
Union Pacific–Central Pacific 103-105
Transcontinental rate structure
area included 599
blanketing of eastern area 601
discrimination against Intermediate points 601-602
early competitive situation 600
eastbound rates 610
probable development 610-611
recent situation 606-607
westbound class rates 608-609
zoning order—1911 603-604
zoning order modified 604-605
Transcontinental territory 225-227
Transfer house 318
Trans-Missouri Freight Association case 185
Trans-Missouri rate structure
area defined 585-586
Colorado Common Points 586-587
competitive situation 586
evaluation 589-590
Montana Common Points 588-589
other rates 589
Utah Common Points 588
Transportation Act of 1920
dual nature of the problem 809-810
House and Senate bills 810-814
operation 835-889
provisions 814-834
solutions offered 808-809
Transportation and trade
obstacles to the development of 20-23
relationship between 20
Transportation
definition 4
engineering problem 5
importance of the study 18
periods in the development of primitive 24
costs 29-30
nature 25-29
relation of, to
consumption 13
distribution of wealth 14-16
division of labor 7
exchange 14
population 10
production 13
production and market centers 9
progress 10
state 11
utilization of resources 8
types of agencies 7
Treasurer, work and staff of 290
Trevithick, Richard 62-63, 67
Trunk Line territory 217-219
Trunk Line territory, rates in
area defined 549-551
Central Freight Association territory 560-562
distance tariff adopted 553-558
disturbing elements 552-553
early competition 551
Eastern Trunk Line territory 563-564
market competition 558-559
New England territory 562-563
summary statement 564
traffic competition 552-553
Turnpikes 47-49
Twin City adjustment 582
Type of traffic, comparisons vitiated by 624-625

U

Undermaintenance during federal control 842
Unification, railway
see Consolidation
Uniform accounting system
power to prescribe 765
progress made 417-421, 769-770
Uniform classification 345-348
Uniform rate scale 348-349
Union Pacific–Central Pacific
early plans 103
important men 103, 104
obstacles 103
public aid 105
Union Pacific system 245-246
Unions, growth of labor 208
Unit billing 316
Unity of action
compulsion versus volition 457-458
need 455-457
Upward trend of wages 872
Utah Common Points 588

V

Valuation Act
administration 794-795
major problems 795
need and importance 793, 797, 798
progress and results 795-797
provisions 793-794
Valuation, railway
bases recognized 481-486
importance 488-489
public policy 487-488
"Value-of-the-commodity" 533-535
"Value-of-the-service" 527-529
Vanderbilt system 240
Van Sweringen lines 248
Vitiating factors in cost comparisons 623-626

W

Wabash case 666, 738
Wage, a reasonable 865-866
Wage decreases in 1921-1922 864-865
Wage increase in 1920 861-863
Wages inadequate in 1920 845
Wages, increase during federal control 203-204, 207
Wages—influenced by transportation 15
Wages since 1922 869
War Board, Railroads' 190
War, influence of 88, 159
Water competition and transcontinental rates 605-607
Water craft

propulsion of 28
types 28
Water routes and colonial development 39
Water routes, natural, in America 38
Water traffic, decline of
coastwise 141
Erie Canal 116-117, 140
rivers 140
Water transportation
early
advantages of 31
evolution of 27
Watered stock
conditions promoting 492-494
meaning 489
morality 494-496
purposes 490-492
tests 489
"Watered stock validated" 880
Watt, James 61, 62
Way-bill
functions 313-315
types 315
Western Classification territory 334
Western Pacific–Denver and Rio Grande Western 248
Western Trunk Line rate structure
adjustments necessary
Chicago–St. Louis 579-580
inter-river rate 581-582
other relationships 582-584
Twin Cities 582
area defined 579-580
intraterritorial rates 584
outbound rates 584-585
summary 585
"What-the-traffic-will-bear"
evaluation 536-538
future use 538-539, 546
importance 536
nature 535-536
Wheel, evolution and importance of 26
Windom Committee report 100, 114, 735-736
Wilson, Woodrow 193, 800, 803, 808
Wisconsin Passenger Fare case 667, 778, 849
Wisconsin Railroad Commission 726

Z

Zones, Transcontinental 603
Zones, Trunk Line 556, 557
Zoning order, 1911 603, 787